

SCO targets users The company gets ready to issue invoices to Linux shops to protect intellectual property. **PAGE 8.**

Readers react Mark Gibbs' recent column on the MCI affair draws a variety of reader responses. **PAGE 43.**

NetworkWorld

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CSI: Lost e-mails

No matter how squeaky clean your company is, sooner or later you'll face legal action that will require you to produce e-mails dating back years. If digging through thousands of back-up tapes is too daunting a task, there are forensic experts who will sift through your electronic data and pull out the relevant bits of evidence.

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Utility computing plans take shape

Microsoft begins to flesh out ambitious management platform.

■ BY JOHN FONTANA

Microsoft last week shipped one of the first tools in the company's wide-ranging portfolio designed to create a comprehensive platform for managing computing resources.

The company made available for free its Automated Deployment Services (ADS), which supports the automated and simultaneous installation of Windows 2000 and 2003 on networked servers.

But ADS is just the beginning of an ambitious multi-year, multi-stage plan Microsoft unveiled in March called the Dynamic Systems Initiative (DSI). The plan is designed to create a platform for a self-managing environment built around applications that can communicate their management needs to the network.

Experts say if Microsoft fulfills its DSI plan, the company will become more competitive in corporate data centers. The company has committed \$1.7 billion in research and development this fiscal year for DSI-related technologies.

The software giant is trying to keep pace with rivals HP, IBM and Sun. All three have evolving complex strategies to create management environments that would let systems adapt to change by dynamically allocating resources and installing software.

See Microsoft, page 68

HP and other vendors bolster product plans via acquisitions.

■ BY DENISE DUBIE

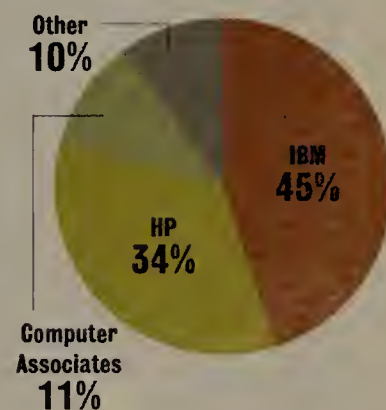
High-tech heavyweights determined to deliver on utility computing continue to pull out their checkbooks for key technologies they hope will fill out their product lines.

The buying spree continued last week as HP said it plans to acquire Talking Blocks, a maker of Web services management software. HP last month bought Extreme Logic, a consulting firm that specializes in Microsoft .Net applications and infrastructure. HP's moves are part of a trend that in the last 12 months saw competitors IBM, Sun and Veritas Software spend millions of dollars to buy nine companies between them — all in the name of utility computing.

See Utility, page 66

Utility power

In a survey of 675 IT executives, SG Cowen found IBM and HP at the top of respondents' list of utility-computing vendors they'd employ.



NetworkWorld

REVIEW Double-header

Novell NetWare 6.5

With NetWare 6.5, Novell does a good job integrating open source add-ons.

Page 12

Microsoft Exchange Server 2003

Page 51

Exchange Server 2003 offers new security and anti-spam features, better performance.



Hell



Heaven

The right software can transform your infrastructure into an on-demand environment.

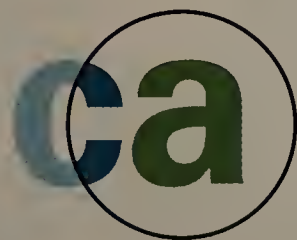
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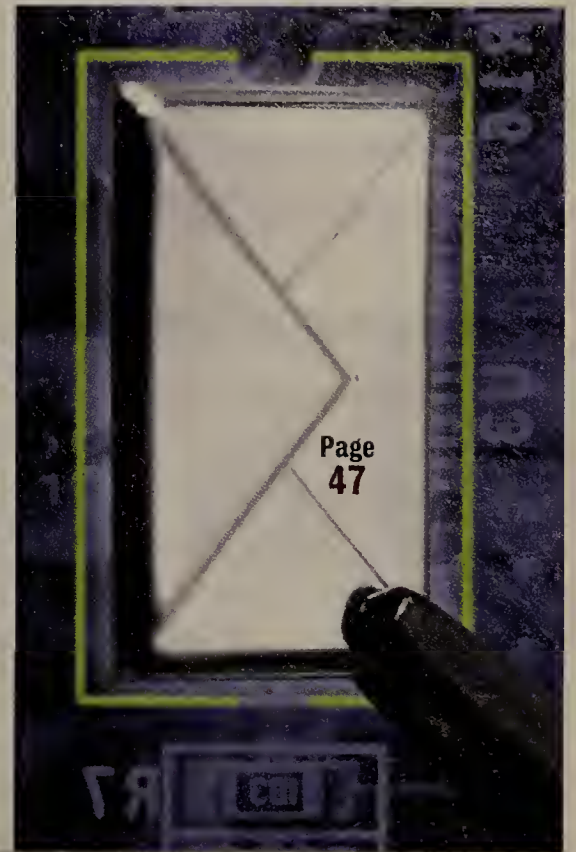
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Product Peek: SyslogAnalyzer 2.0 helps you analyze server log files. **Page 52.**

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Columnists

Compendium

Why he hates Microsoft, Part 1
Fusion Executive Editor Adam Gaffin introduces you to Phil Karn, who wrote some error-correction code that Microsoft included in Windows XP, a move that Karn has lived to regret.
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Wireless Wizards

Consumer-grade access points in a business network
The wizards help Nasir in Los Angeles, who's experiencing the difference between commercial- and enterprise-grade wireless products. **DocFinder: 7530**

Telework Beat

Home agent debate heats up
NetWorker Managing Editor Toni Kistner explores who makes the best call center agents — employees or contractors.
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Small Business Tech

Where your Web site lives
Columnist James Gaskin outlines the differences between hosting your own site or handing it off. **DocFinder: 7533**



The Siemens SL56 keypad slides out when you want to make a call.
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News

Bits

Ripple expected from patent case

■ Companies with products that work on the Internet are waking up to the implications of a recent judgment against Microsoft in a patent infringement case. The \$520 million award to Eolas Technologies and the University of California stemmed from a 1999 lawsuit in which Eolas and UC charged Microsoft with infringing on a 1998 patent owned by the university and licensed to Eolas. That patent, which Eolas President Michael Doyle developed at UC San Francisco, covers technology that lets applets or plug-ins be embedded in Web pages and interacted with through Web browsers such as Internet Explorer. In response to the judgment against it, Microsoft said last week it will be making changes to Internet Explorer that might affect a "large number of existing Web pages," the World Wide Web Consortium said in a statement. Technology and legal experts agree that the ruling could affect a range of companies with products that interact with Web browsers or services that rely on customer interaction through Web browsers.

Nortel lands billion-dollar Verizon Wireless deal

■ Verizon Wireless has awarded Nortel a \$1 billion multiyear contract to supply equipment for upgrading and expanding Verizon's nationwide network. Verizon Wireless plans to deploy CDMA2000 1X radio base stations, switching, Passport IP platforms and other related equipment from Nortel in Atlanta, Cleveland, Detroit, Las Vegas, Los Angeles and San Diego. The agreement also includes a market build-out and deployment of CDMA2000 1X technology in Myrtle Beach, S.C. The upgrades are designed to provide more network capacity for digital voice and high-speed data services such as Web browsing, streaming audio and video, multimedia messaging, m-commerce and VPNs. Verizon Wireless has the largest nationwide wireless voice and data network with 34.6 million customers.

MCI appoints five to board

■ MCI, legally known as WorldCom, is appointing five new members to its board of directors. The appointments will become official when the carrier emerges from bankruptcy protection. W. Grant Gregory, former chairman at Touche Ross; Judith Haberkorn, retired executive from Bell Atlantic; Laurence Harris from Patton Boggs; Eric Holder, former U.S. Deputy Attorney General; and David Matlin, CEO at MatlinPatterson Global Advisers, will join the board. MCI also plans to appoint a chairman of the board. CEO Michael Capellas currently also holds that title.

Survey finds identify theft surge

■ More than 27 million U.S. residents have been victims of identity theft during the past five years, according to a survey the Federal Trade Commission released last week, but the

The Good The Bad The Ugly



The World Wide Web is not enough.

James Bond has defeated yet another foe. This time, Bond actor Pierce Brosnan has won a legal challenge vs. a company that owned the piercebrosnan.com Web site for the purposes of redirecting visitors to a commercial site, according to a Reuters report. In awarding Brosnan rights to his domain name, the World Intellectual Property Organization said the behavior of the renowned cybersquatter whom Brosnan squared off against "constitutes a pattern of conduct intended to capitalize on the goodwill associated with others' fame for its own illegitimate purposes." ➤



Bad day at the Office.

Microsoft gave the open source camp something new to smile about last week when it warned of several newly discovered flaws in its Office program, including a "critical" one involved with technology for running custom applications on Office. The software company issued patches and urged customers to take advantage of them as soon as possible.



Oh, c'mon now. A recent online survey of 28,000 e-mail users conducted by Yahoo Mail reports that three out of four find flushing spam from their in-box to be more aggravating than cleaning a toilet. . . . Forced to choose for real, how many do you think might actually grab a brush?



BRIAN GAIDRY

agency is unsure how many of those crimes happened through technological means. After conducting a phone survey, the FTC estimates that 9.9 million U.S. residents have been victims of identity theft during the past year. The survey of more than 4,000 adults is the first comprehensive attempt by the U.S. government to learn the number of victims. The FTC's numbers are higher than most previous estimates. A Gartner survey released in July found 7 million victims of identity theft in the previous year, while the FTC received about 380,000 complaints about identity theft in 2002. Last week, the Information Technology Association of America launched the Coalition on Online Identity Fraud to combat identity theft online.

SIP to be put to test at show

■ More than 20 vendors of Session Initiation Protocol-enabled products will join in an interoperability demonstration to show customers what their offerings can do. The SIPop booth at the Fall 2003 VON trade show Sept. 22-25 in Boston is scheduled to include a variety of products, including videoconferencing systems, phone services software and media servers. "The goal is to show how applications can be supported seamlessly across multiple platforms," says Carl Ford, who is helping organize the event for the show producer, Pulver.com. "This is a significant display that SIP is readily available for people to purchase." SIP, a real-time communication protocol, enables peer-to-peer style communication among devices on an IP network, making it possible to put much of the call intelligence within end devices, such as phones.

Zix buys Elron Software

■ Zix, which provides e-mail encryption services and content filtering, last week acquired Web content-filtering vendor Elron Software for about \$7 million in a stock-based transaction. The acquisition, subject to shareholder approval, is expected to give Zix more than 4,500 new customers, including Eli Lilly, 20th Century Fox, Anheuser-Busch, CVS, Texaco and Time Warner.

COMMUNICATION

VoIP over wireless

Phil Windley is experimenting with it: "The problem is my wireless connection. Right now, I get between 20% to 30% packet loss when the connection works. That doesn't make for a good phone call." Read more at www.nwfusion.com, DocFinder: 7535.

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SCO readies invoices for Linux

■ BY JENNIFER MEARS

In its ongoing battle to protect its intellectual property, The SCO Group is stepping up its focus on corporate Linux users. The software maker now plans to send invoices to companies in an effort to levy fees for the use of Linux, which SCO says illegally contains its copyrighted Unix code.

The plan escalates a program the company launched in August in which it urged customers using Linux based on Kernel 2.4 or higher to buy the SCO Intellectual Property License for Linux. The license, which is being offered for \$700 per CPU until Oct. 15 (when the price will double), is aimed at getting customers "clean" and "square" with Linux "without having to go into the courtroom," says SCO CEO Darl McBride.

The invoices, which will be sent sometime this month or next, "help formalize the process of buying a license," says Blake Stowell, a spokesman for SCO. It wasn't clear how SCO would determine the invoice charges.

"We are doing a lot of research on who's using Linux and where they're using it. Beyond that I don't have any other details as to how we may invoice companies," Stowell says.

Users seem unfazed by this latest twist in SCO's battle to protect its intellectual property rights that began in March with a lawsuit against IBM. The battle has since escalated into a skirmish with corporate Linux users. Most users say they wouldn't consider paying SCO; others say they might pay up just to get rid of the headache.

"If you think about how little you pay for Linux as it is, \$699 for a box just to not have to deal with it is not that bad," says an IT executive who asked not to be named. "For me, the issue is it's an annoyance."

The user says he hasn't offered to buy an IP license for Linux, but if an invoice arrived on his desk he'd pay. "For anything less than \$5,000, I would just pay them to

See SCO, page 10

■ **Read Mark Gibbs' open letter to SCO Linux licensees. PAGE 70.**

Start-up focuses on anomalies

■ BY ELLEN MESSMER

Start-up System Detection this week will make its debut with software the company says stands apart through its use of analytics for defining and categorizing threats and attacks coming from the Internet and inside the corporate LAN.

The company's Antura product includes three components — the Recon Internet gateway, LAN-based Monitor sensor and Threat Management Center management console — that work together to give companies a feel for where threats and attacks originate and to help them prioritize their response (see graphic).

Antura, which customers install on Linux-based machines, relies on anomaly detection. With anomaly detection the devices can analyze suspicious behavior based on patterns and knowledge rather than signatures of known attacks.

System Detection faces the hard task of distinguishing itself in what Synergy Research Group says is a \$145 million market so far this year for intrusion-detection and intrusion-prevention systems (which use IDS intelligence to block attacks not just watch for them). The biggest player in this segmented market is Internet Security Systems, although Lan-

cope is probably among System Detection's closest competitors.

"It's a very crowded field and this type of anomaly based IDS is tough to test because you're trying to prove you can find what may be a threat that's unknown and not based on a signature," says Pete Lindstrom, an analyst with Spire Security. But with false positives still a problem among many products, he says the door isn't closed to newcomers with

fresh ideas.

Antura, which starts at \$20,000, isn't necessarily intended to replace signature-based IDS offerings that customers might already use, according to Dale Gardner, System Detection's vice president of marketing.

"[Existing IDS products] may do a good job of telling you about threats you already know, but Antura is detecting anomalies based on 68 different attributes, such as the man-in-the-middle attack, for instance — someone trying to insert themselves into an active session," he says.

The start-up was founded by Columbia University computer-science professor Salvatore Stolfo, who has a background in network anomaly detection research that was funded with a Defense Advanced Research Projects Agency (DARPA) grant. Columbia University owns the rights to the anomaly detection technology developed under the DARPA grant, but has licensed it exclusively to System Detection. The company has 24 employees and \$7 million in funding from Metropolitan Ventures and Novak, Biddle Venture Partners.

Analysts say the company would do well to crack the government market. The company might have a shot, given the background of CEO and President Harvey Weiss, the former head of research and engineering company SAIC and a veteran in government sector-oriented divisions at Digital, Trusted Information Systems and Unisys. Lindstrom says. ■

Three-tier defense

System Detection's Antura intrusion-detection system, consisting of three separate Linux software programs, looks for trouble in front of and behind firewalls.



Recon server

Identifies incoming scans and attacks.

Monitor sensor

Collects threat information by detecting anomalies on the corporate network.

Threat Management Center

A management console that gathers information collected by Antura's Recon and Monitor, and then makes sense of it (such as by ranking threats) so that companies can fight intruders in an organized fashion.

Service provider expands VPN reach

■ BY DENISE PAPPALARDO

Service provider Netifice Communications is expanding its network to offer users a simpler way to securely manage remote office connectivity.

The company says it will announce this week a deal with New Edge Networks that expands Netifice's DSL reach to 100 additional cities served by New Edge and beefs up its broadband coverage in 270 more.

Netifice offers fully managed VPN services using its national IP backbone and partnerships with about 20 DSL and cable modem providers and, soon, one satellite service provider.

"While coverage is king, we're focused on offering users the best price to meet their VPN needs," says Gregory Davis, vice president of marketing at Netifice. For example, through its partnerships in Washington, D.C., Netifice has

15 DSL providers to choose from when setting up VPNs.

Netifice is expected to announce a partnership with Hughes Network Systems that will let customers also use Very Small Aperture Terminal (VSAT) satellite connectivity at all or some of their sites. Hughes VSAT services are available nationwide, even in the most rural remote sites that are often impossible to service with DSL or cable.

All Netifice partners standardize on Cisco Efficient Networks or Netopia customer premise equipment that has been tested and certified to perform well with Netifice's backbone. This gear also supports IP Security tunnels for secure network connectivity.

Standardizing on specific vendors' gear makes it easier for Netifice to get a full, end-to-end view of each customer's VPN using its SmartWorx monitoring software and to offer standard

Easing VPN management

Netifice offers fully managed VPN services over broadband connections that include integrated billing, SLAs and network monitoring.

Connection	Monthly price
T-1, 1.544M bit/sec	\$400*
SDSL, up to 1.5M bit/sec	\$120 to \$400
ADSL	\$70
Cable modem	\$95

*Plus local-loop fee of \$150 to \$300 per month.

SOURCE: NETIFICE

service-level agreements (SLA), the company says.

Netifice's claim to fame is its ability to offer users a single VPN that's fully managed and monitored as if it were one network, even though 10 or more service providers might provide local service. And the company offers SLAs that cover its last-mile partner networks. The standard SLA

guarantees 99.9% network availability, round-trip network latency that does not exceed 160 millisec and packet delivery that does not fall below 99.7%.

Network reliability was one of the reasons Chevys Inc., the company owns Chevys Tex Mex restaurants, selected Netifice for its VPN needs. The majority of the

See Netifice, page 14

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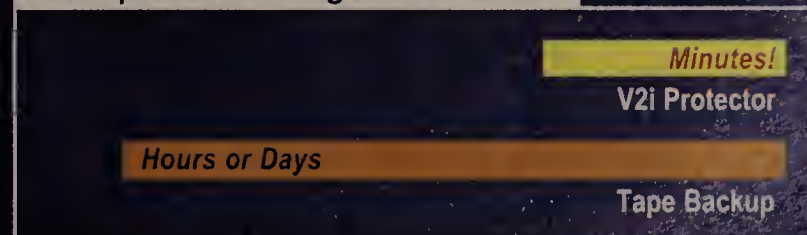
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GLOBAL DEPLOYMENT AND RECOVERY AUTOMATION

SCO

continued from page 8

make it go away," he says.

Bill Claybrook, an analyst at the Aberdeen Group, says paying such a fee would be ridiculous at this point.

"It's foolish for anyone to go out and buy licenses for Linux because there is a very good chance that you won't have to at all," he says. "And if you do have to, it isn't going to be any more than it is now. So why bother?"

While the Linux community for the most part has scoffed at SCO's efforts to charge license fees for Linux, the company says it had 900 calls in the first week it offered the license, 300 of which were companies seriously considering buying a license. In addition, at least one company, a Fortune 500 firm that SCO would not name, has purchased a license for "a significant amount."

SCO's lawsuit against IBM isn't scheduled for trial until April 2005. And copyright violations within Linux, which might affect commercial Linux users, isn't part of that original filing, SCO's Stowell says.

"The trial specifically just addresses Unix derivative code that IBM contributed to Linux," he says. "This [SCO Intellectual Property Linux License] would certainly cover that, but in addition the license also covers line-by-line copying of direct Unix System code from Unix into Linux. We've never accused IBM of direct line-by-line copying."

Snippets of code that SCO says are in violation have been discounted by Linux advocates who say the code at issue is legally part of Linux. Stowell says customers can take a look at the code in question — under a non-disclosure agreement — and then make up their own minds.

"If a company looks at that and still refuses to take out a license it's very possible that it would be at that point that we would take legal action," he says. "And that's when it would probably be proven in a court of law."

Meantime, SCO has found itself on the losing side of a court case in Germany in which it was fined \$10,000 for continuing to include a letter on its German Web site that claims intellectual property violations in Linux. A German court had ruled that SCO could not make such claims without corresponding evidence. ■

Lotus adds IM to Notes client

■ BY JOHN FONTANA

IBM/Lotus later this month will ship Notes/Domino 6.5 and begin to show corporate users how to extend the reach of its collaboration software by embedding it in everyday client software.

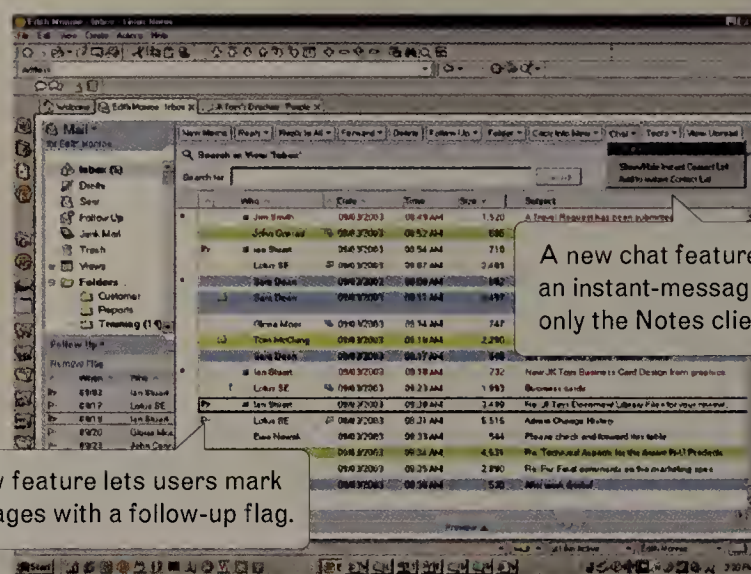
With embedded components users can stay within their familiar software and still have access to collaboration features such as instant messaging. The benefit for IT is less end-user training, less client software to maintain and better ROI in collaborative software.

The 6.5 release is focused on the Notes client and highlights how it is integrated with instant messaging and presence information supported by the Lotus Instant Messaging and Web Conferencing Server. Instant-messaging capabilities can be integrated into the Notes in-box, forms, applications and databases without the need for a separate client. Later this year, IBM/Lotus plans to add Web conferencing and team workplace integration.

What Lotus is missing, however, is Web services-based integration

New look

Lotus later this month will release Version 6.5 of Notes/Domino that will include integrated instant-messaging capabilities to eliminate the need for a separate instant-messaging client.



with applications from other vendors. The instant messaging integration with Notes/Domino 6.5 doesn't go beyond Notes/Domino applications and IBM's WebSphere Portal Server.

Lotus and Microsoft have been promising for more than two

years to deliver a set of components from their respective collaboration suites that can be used to add features to other applications.

The concept is known as contextual collaboration, which would let collaborative features be added to any application. For

example, an instant-messaging component could be used in a CRM application to provide an indicator that a support person is online and foster a real-time chat session, all within the CRM interface.

"IBM/Lotus has institutionalized the component concept better than any other vendor," says Matt Cain, an analyst with Meta Group. "But the focus has been on [IBM/Lotus] product-level integration and you don't see a deeper integration, with other software based on Web services interfaces."

Without Web services interfaces, users will be hard pressed to easily integrate components across various vendors' products.

Cain says the focus on instant messaging in Notes/Domino 6.5 is a move to increase momentum behind Lotus' 5-year-old instant-messaging technology before Microsoft's scheduled release on Oct. 21 of Office Live Communications Server for IM, Outlook 2003 client and Office 2003 application suite.

Corporate usage of instant messaging is expected to increase from 60 million users today to 349 million in the next five years, according to a survey in June by research firm The Radicati Group.

The Notes 6.5 client is highlighted by the fact that a separate instant-messaging client is no longer needed as was the case in Notes 6.0.

The interface has four new icons that allow chat sessions, instant meetings and the ability to add users to a buddy list and hide/show that list within the client.

The instant-messaging integration also incorporates presence information into the Domino directory or any Lightweight Directory Access Protocol-compliant directory that lets users see who in the company is online, not just those on their buddy lists.

The instant-messaging integration is built using Domino Designer, which lets developers add presence capabilities to any application that can be accessed by the Notes client.

Notes/Domino 6.5 will ship at the end of the month. Pricing is the same as the 6.0 client, which starts at \$90 per user and the 6.0 server, which starts at \$2,964. ■

— John Fontana

IBM racing ahead with component strategy

With Lotus as a lead example, IBM is working to break down the other software products in its portfolio into sets of components that can be assembled quickly in multiple ways to meet corporate computing needs.

Danny Sabbah, the CTO of the IBM software group, says the goal is to make it faster and less expensive to integrate middleware capabilities pulled from transaction services of the WebSphere Application Server, data from the DB2 database, security and system management services from Tivoli and collaboration from Lotus.

"It is a flavor of our On-Demand strategy," Sabbah says. "We are trying to make our software more reactive to customer needs so people pay a lot less in terms of underlying labor for dynamically created solutions and see a decrease in the amount they spend to integrate products."

IBM is training its 12,000 developers to use a common development process that gets away from a production-line mentality of developing software and lets developers build across product lines. The company is using a principle it calls progressive discovery, which is a way to expose interfaces needed for the component model.

Big Blue says it hopes middleware components will allow for the flexibility to pull together quickly

select features to support applications.

For example, Sabbah says IBM could offer a data-warehouse bundle that will pull information from various sources and incorporate components of WebSphere for transactional integrity and Tivoli for secure access.

Interest in componentization has been garnered lately by advances in Web services and the evolving set of open standards behind the technology, such as those for security and business process workflow.

To support component integration, IBM also is developing an architecture called the Enterprise Services Bus, which is a sort of integration hub for its middleware components and other components brought together as part of a Web services application, especially those that cross corporate boundaries.

"We are trying to figure out what the first release needs to look like," Sabbah says.

He says within the next year components will help define how IBM middleware supports a services-oriented architecture, which is basically an infrastructure for tying multiple components into one application or to support a workflow that executes some business process, such as approving a loan.

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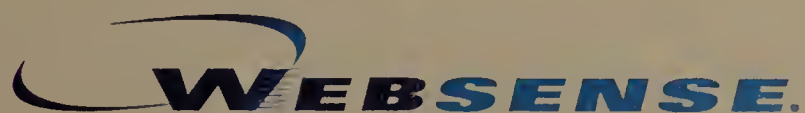
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NetworkWorld

Review

NETWARE 6.5

NetWare points Novell directly toward Linux

■ BY THOMAS HENDERSON, NETWORK WORLD GLOBAL TEST ALLIANCE

Even though all of Novell's network services will not be ported to Linux until late this year, in our testing of the just-released NetWare 6.5, we found that Novell's preliminary open source add-ons are well integrated, complemented by Novell's mature eDirectory services and managed comprehensively by NetWare iManager 2.0.

NetWare 6.5 is driven heavily by Web interfaces, its improved Virtual Office application (see related story at www.nwfusion.com, DocFinder: 7540), and ties between eDirectory and the open source pieces — Apache, MySQL, and Perl/PHP (AMP) — that ship with it. Also included in the NetWare 6.5 development platforms are TomCat, Java 2 Platform Enterprise Edition, Novell's Extend application server platform (from Novell's acquisition of SilverStream) and its DirXML (parser and API set). These pieces comprise Novell's efforts to make NetWare a better environment for building and running Web-based applications.

We installed NetWare 6.5 with various options on a number of servers, ranging from a Gateway 1U to Compaq DL360 and DL580 multi-CPU servers (see How we did it, DocFinder: 7541). The installation options mime functionality found in most server platforms, such as DNS, Dynamic Host Configuration Protocol and certificate management.

Novell's hardware discovery processes worked well across all platforms tested. However, NetWare doesn't try to make any guesses as to the lab's network

address infrastructure, unlike Windows 2003 and a number of Linux versions, both of which occasionally misidentified network routers, and other services.

Instead of managing each device (hard disk, tape drive, CD/DVD and so on) separately, NetWare can aggregate storage devices and areas into objects called pools. We created both server-localized (local hard disk) pools, but also pools of storage across the lab's storage-area network (SAN) using various file systems and disk/volume combinations. Although NetWare uses its own filing system for its system storage area, it can mount a variety of filing systems, including the Common Internet File System that we created in the SAN. Apple File System support is also available, and we found no difficulty either deploying or accessing any of the filing systems tested.

Security

NetWare 6.5 doesn't provide a firewall or IP Security VPN services, but network address translation and port blocking are provided. From a value standpoint, this compares less favorably to XServe OS/X and Linux, which contain a slightly stronger firewall and a variety of VPN methods, and somewhat favorably with Win 2003, which contains nominal firewalling and comparatively strong VPN services.

Client logon capability can use many methods from simple password to complex password to certificate-based in combination with biometrics/SmartCard authentication techniques. We used the X.509 certificates with little setup time, but found the process adds about 10 seconds to any logon.

User and group security is strong in NetWare 6.5 because of the highly articulate controls within iManager 2.0, a Web-based central console for almost all NetWare services. While eDirectory ties resources in ways that can establish and authenticate identity, the iManager aggregates the functionality of users, groups, devices and directory contexts well.

Administrative control through iManager was occasionally sluggish, but it was comprehensive and better laid out than other management applications.

Our only criticism of iManager was its

brief, poorly linked help system. And, alternative browsers (Opera and older Netscape) aren't supported by the DirXML-driven apps and servlets used by iManager, thus requiring Internet Explorer or later versions of Netscape.

The open source twist

By adding AMP, Novell has linked its foundation of mature eDirectory services to one of the most popular open source Web applications engines. This combination has a large number of followers in the open source community, and we found that maintenance of the AMP applications (such as recompiling them) is no more difficult than it is on Linux or Berkeley Software Distribution. We ported several scripts from Linux/Apache and ran them with no difficulty after adjusting the scripts for the differences in file locations. There's even a server X console to make Unix/Linux/BSD programmers and administrators feel at home.

The AMP combo, often found on Linux applications servers where it's known as LAMP, has huge popularity with Web and applications developers and a large base of readily available open source code. We were disappointed to find some beta products in the mix, even though the products were at the current release levels.

Performance

We subjected NetWare 6.5 to the Web-Avalanche test environment used to test Red Hat Enterprise Linux, SuSE/UnitedLinux and Win 2003 earlier this year (see DocFinders: 7536 and 7537). NetWare scored well in terms of transactions, but not in Web IP performance.

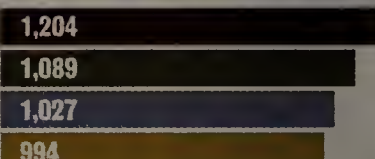
NetWare 6.5 and Apache 2.02 bettered Win 2003 in number of transactions per second. But in maximum number of TCP open connections and maximum number of sustained Web connections, NetWare 6.5 scored consistently lower than its competitors.

NetWare 6.5 is a stepping stone to NetWare on Linux. While the grafted open source applications might not be quite as speedy as we'd like, the combination is powerful. In some ways, the basic infrastructure to NetWare hasn't

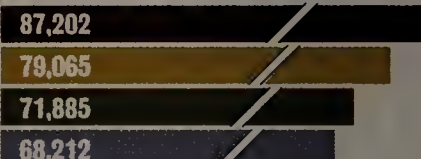
Counting Web performance for NetWare 6.5

In our tests, NetWare 6.5 running Apache held its own in terms of Web transactions, but didn't score as well in Web IP performance against Linux or Windows 2003.

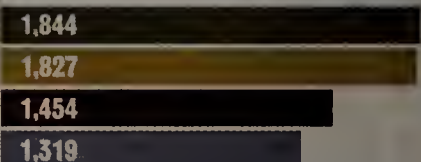
Successful transactions per second*



Maximum open TCP connections



Maximum TCP connections/sec



Legend: ■ NetWare 6.5 ■ Red Hat Linux ■ UnitedLinux/SuSE ■ Windows 2003

*Transactions equals successful download of 20, 4K files.

Note: Linux and Windows 2003 results achieved in previously published tests using the same methodology.

Net Results

NetWare 6.5

OVERALL RATING
4.13

Company: Novell **Cost:** Starts at \$995 for a new, five-user license.

Pros: Offers unified services control; interesting Web applications offered with Virtual Office; open source services included. **Cons:** Slower Web performance showing; can require significant set up time for all features.

The breakdown

Installation/integration	25%	4.5
Performance	25%	3.5
Management	25%	4.5
Security	25%	4.0
TOTAL SCORE		4.13

■ Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently poor

changed in 20 years, but the direction toward NetWare as an open source platform is happening quickly and, in our opinion, successfully.

Henderson is principal researcher for ExtremeLabs, of Indianapolis. He can be reached at thenderson@extremelabs.com. is a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.



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Enterasys, Netgear target SMB networks

■ BY PHIL HOCHMUTH

Enterasys Networks and Netgear each recently debuted LAN switches aimed at scaling up networks in small and mid-size companies.

Enterasys introduced Matrix V2, a fixed-configuration stackable switch that could be used to add quality of service (QoS) and other advanced features to small business networks. Also, Netgear, traditionally a consumer-focused firm, launched its FS526T 24+2 Smart Switch,



Enterasys' Matrix V2 is aimed putting advanced features in smaller networks.

aimed at the same customers: smaller companies looking to add advanced LAN traffic features.

The Enterasys Matrix V2 is a 24-port 10/100M bit/sec Ethernet switch with two Gigabit Ethernet ports for connecting to a LAN

backbone or for stacking Matrix V2s. (Eight units can be stacked and managed as one device.)

The Enterasys switch also provides features such as Layer 2 QoS (802.1p) and virtual LAN (VLAN) support. The box can classify and prioritize Layer 2, 3 and 4 traffic based on such data as packet IP address, media access control address or TCP/User Datagram Protocol (UDP) port information inside the packet.

The box is manageable via

SNMP, and has Web interface and Remote Monitoring capabilities. Secure Shell and Secure Sockets Layer support is included for secure device management, and 802.1x and RADIUS support for securing both wired and wireless clients at the switch-port level.

Netgear offers a similarly built box, with 24 10/100 ports, but with two built-in 10/100/1000M bit/sec Ethernet ports for network or server uplinks. The box supports features such as 802.1p and VLANs, port trunking (for linking separate physical ports into a faster virtual link), and a Web browser interface for configuring and managing settings on the device.

While analysts keep predicting the imminent turnaround for big-business IT spending, network vendors on both the large corporations and small office/home office ends of the spectrum have gone after smaller companies. Cisco has led a movement among large enterprise network vendors of marketing toward smaller firms, along with its acquisition of commodity network vendor Linksys. Dell also has made this a focus with its PowerConnect switch line for small to midsize businesses (SMB). Competitors at the lower-end of the market alternatively have upscaled their offerings; consumer-brand companies such as D-Link Systems, Netgear and others now offer technologies such as Layer 3 Gigabit Ethernet and SNMP on their boxes.

Analysts say an increased use of enterprise-level applications — such as ERP and CRM systems — by small and midsize companies is spurring demand for more robust infrastructures in such firms. Jupiter Media Metrix predicts that sales of enterprise software to small and midsize firms (100 to 500 employees) will increase over the next three years, going from just less than \$1 billion in 2001 to more than \$3.4 billion by 2006.

Meanwhile, Gartner says that SMB spending will increase 7.6% in 2004, as companies look to upgrade such hardware and PCs and servers, with upgrades from 100M bit/sec to Gigabit Ethernet on server and backbone switch connections.

Netgear's FS526T 24+2 Smart Switch is available for \$400, while Enterasys' Matrix V2 costs \$400. ■

Cisco expands Fibre Channel line

■ BY DENI CONNOR

Cisco is expected to introduce two Fibre Channel switches this week that will give users more choices for expanding the size of their storage-area networks.

At Storage Decisions 2003, the company will announce the MDS 9100 series, which consists of two rack-mountable 1U, 2G

bit/sec Fibre Channel switches available in 20- and 40-port models. The 9120 and 9140 Multilayer Intelligent fabric switches are installed between smaller Cisco SN5428 Storage Routers residing on the edge of the network and midrange 16 to 40 port MDS 9216 Multilayer switches or MDS 9500 director-level switches located in the

data center.

"One of the advantages of these switches over a director-level switch is that they let me save money and buy switches that are closer to edge-switch pricing," says Barry Brazil, enterprise architect for Reliant Energy, an energy company in Houston.

"The Cisco MDS 9100s are great switches for workgroups as well as departmental storage," Brazil says. "For instance, we have a couple of sites that hang off our dense wave division multiplexing ring where it wouldn't be prudent to put a director-level switch. When you are talking about ancillary storage, it's a good idea to put in switches of this size and save money on port cost." Brazil has both McData Intrepid Directors and Cisco MDS 9500 director-level switches installed.

The MDS 9120 and 9140 are similar to Brocade Communications' 16- to 32-port Silkworm 3800 and 3900 and McData's 24- to 32-port Sphereon 4500 and 3232. Cisco differentiates them from other switches, however, in their ability to be managed by much the same software Cisco users employ for the company's network routers and switches.

Management of the MDS 9100 is integrated with CiscoWorks and has a Cisco IOS-like command-line interface. In addition, with free software Cisco includes with its Fibre Channel switches, customers can partition SANs into configurations resembling virtual LANs for security purposes.

The MDS 9100 switches are expected to start at about \$29,000 and be available later this month. ■

Netifice

continued from page 8

company's 120 restaurants are connected to the corporate VPN via symmetrical DSL with a few frame relay sites, where DSL wasn't feasible, says Charlotte Krause, vice president of IS at Chevys.

"We chose Netifice because they understand a distributed environment where there is not technical support at the remote sites," she says.

Once the company completed its nationwide DSL VPN upgrade last year, it was able to deploy new point-of-sale, inventory and Web ordering applications, which have helped offset some of the costs of moving to broadband from a dial-up network, she says.

"These applications would have been so slow on dial-up they would have been ineffective," Krause says. Chevys says it likes the idea of working with a provider that had relationships with several broadband service providers and specializes in remote office support, although other well-known players offer similar services. AT&T, MCI and Sprint offer fully managed VPN services that also include DSL, cable modem or satellite service. But these services typically are not visible using a single management tool, nor do users receive a single invoice as they do with Netifice, says David Passmore, research director at Burton Group.

"Netifice peers with local service providers and [cable operators] at Layer 2. The beauty of this is that it allows them to take responsibility for their customer's network from end to end," Passmore says. "Normally, users are at the mercy of their local broadband provider."

The service provider's SmartWorx software is a network monitoring tool where users can get real-time information on network performance and where users submit trouble tickets and view their invoices.

Keeping remote-office users connected to company headquarters is what Netifice is hanging its hat on, but most of the service provider's customers aren't using this service. About 90% of Netifice's 2,000 customers are dedicated Internet access users the service provider acquired in October when it picked up ISP Epoch Internet. Netifice continues to support these users and also sells dedicated Internet access services, but the company is focusing its sales efforts on the VPN market. Netifice has some big-name customers including Merrill Lynch, Marriott and Pfizer, for whom it manages a 10,000-site VPN. ■

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Freedom of Choice Comes to Wireless

3Com's modular lineup of wireless access points and all-purpose PC Cards support any mix of WLAN and security standards.

Even though wireless LANs have been available for years now, many enterprises have shied away from major implementations for a number of reasons, including concerns about standards, security, scalability and management. Nobody wants to get stuck with technology that becomes obsolete as new generations emerge or that opens the door to intruders.

3Com® has devised a wireless LAN strategy that addresses each of these concerns, with a lineup of wireless products that support all existing WLAN standards. The 3Com 8200, 8500 and 8700 Wireless LAN Access Points use a modular architecture that allows customers to upgrade from one wireless standard to another as requirements dictate.

MODULAR SOLUTIONS

With 3Com's modular approach, users can support any mix of wireless standards (see table). 3Com offers three base models of access points: the 3Com Wireless LAN Access Point 8200 includes an 802.11b radio, while the model 8500 includes an

802.11a radio and the 8700 includes both types of radios. 3Com also offers upgrade kits that allow users to add any type of radio – 802.11a, 11b or 11g – to any of the modular access points. That means users can employ any type of access point and be assured they could later buy an upgrade kit to address future requirements.

A single 3Com Wireless PC Card supports all three IEEE 802.11 wireless networking standards, enabling a client machine to connect to any type of WiFi network. The WiFi-certified card comes with 3Com's award-winning, patented XJACK® antenna, which retracts inside the card, so it won't break off when users store their computers in travel cases. The XJACK antenna also helps preserve battery life because it draws power only when extended.

SECURE, RELIABLE AND FAST

3Com likewise supports a suite of security standards, enabling customers to match the level of security to their specific requirements. To protect against unauthorized network access, the PC Card and access points support WiFi Protected Access (WPA), the next-generation WiFi security standard, 802.1x authentication

with RADIUS server authentication support using MD5 and the Extensible Authentication Protocol (EAP), including EAP-TLS, PEAP and EAP-TTLS.

To protect data in transit, 3Com supports a number of encryption algorithms, including 128-bit Advanced Encryption Standard, and Wireless Equivalent Privacy (WEP) RC4 40/64-bit, 128-bit and 154-bit shared-key encryption.

To ensure good performance, 3Com access points and PC Cards include

Naturally, 3Com access points and PC Cards support the top speeds allowed by each wireless standard – up to 54 Mbps for 802.11a and 802.11g, or 108 Mbps in turbo mode, which combines the throughput of two channels.

MAKING WIRELESS MANAGEABLE

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Jamie Stant, telecommunications consultant, Delaware Department of Technology and Information.

features such as autonomous load balancing, ensuring users always connect to the access point that offers fastest throughput, and dynamic rate shifting, which adjusts connection speed to changing traffic and environmental conditions.

Like many other 3Com products, the access points support Power over Ethernet, enabling the same Category 5 cable that connects the access point to the network to supply its power. That simplifies installation and offers more choices in mounting options.

on where they need to connect from. As users change location, they merely click on an icon for the new location to configure the card.

3Com also supports management standards including SNMP, enabling a 3Com wireless network to be managed alongside a wired network from platforms including the 3Com Network Supervisor and HP OpenView. Using an embedded Web server browser, customers can configure parameters, run diagnostics and monitor performance of the wireless LAN from anywhere on the network.

The 3Com wireless LAN story is all about freedom of choice. Whether it's choosing the wireless LAN standard that best fits your environment now – knowing you can upgrade if requirements change – or the mix of authentication protocols and encryption standards, even the management platform, 3Com offers options to match most any enterprise requirement. In short, 3Com has eliminated the roadblocks to widespread enterprise wireless LAN deployments.



3Com wireless LAN access points and 11a/b/g Wireless PC Card with patented XJACK antenna give customers the ultimate in flexibility along with performance, security and management.

WLAN Standards at a Glance

Standard	Speed	Range (meters)	Frequency	Compatible Standard	Comments
802.11a	54 Mbps, or 108 Mbps in turbo mode	50	5 GHz	None	Operates on a low-interference channel, but with limited coverage. Good for customers with dense user base.
802.11b	11 Mbps	100	2.4 GHz	802.11g	The most widely deployed wireless standard, 802.11b has a high degree of multivendor interoperability but operates in the crowded 2.4GHz spectrum and has a relatively slow top speed.
802.11g	54 Mbps, or 108 Mbps in turbo mode	100	2.4 GHz	802.11b	Higher speed, but still compatible with the millions of installed 802.11b products. Faces same spectrum issues as 802.11b.

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Stratus expands fault-tolerant server options

■ BY JENNIFER MEARS

Stratus Technologies this week is expected to improve its line of fault-tolerant,

Intel-based servers with the introduction of two boxes designed to give customers higher processing power at lower prices.

The midrange, one- to two-processor

ftServer 5600 and the high-end two- to four-processor ftServer 6600 join the updated entry-level ftServer 3300 that Stratus introduced earlier this year. Stratus says it hopes its line of Intel-based boxes will attract customers that might not have considered the typically more expensive fault-tolerant hardware in the past.

Fault-tolerant servers include multiple system components that operate in lock-

"The target is some portion of those people who are clustering today and, frankly, people who are not clustering, but would be willing to spend the money, but have found clustering to be too complicated," says Gordon Haff, an analyst at Illuminata.

While clusters could require complicated configurations, multiple operating systems and applications that are designed to run in a distributed fashion, the ftServers run one Windows operating system and applications without modification, says Denny Lane, director of product marketing for Stratus.

"With our technology you're running one version of the operating system, so there is an inherent cost-savings, but you also don't have to teach the application anything. It's simpler," he says. "People are pulling their hair out with clustering."

Ron Ham, manager of Process IS Rayonier, Performance Fibers Group, says he has had his eye on Stratus machines for years, but they were always too expensive and too

large for what he needed. The Jacksonville, Fla., company is a supplier of specialty fibers, timber and wood products. When Stratus introduced the ftServer 3300 in March, he jumped on it.

"Typically, Stratus was a half-million-dollar or \$250,000 solution that we very desperately wanted to get to, but it didn't fit our model," he says. "When they came out with the 3300 [which starts at \$23,000] it was more attractively priced and engineered to compete with the cluster technology of Microsoft."

Ham says the success he's had with the ftServer 3300 is pushing him to consider bringing in more ftServer boxes, which he might use to replace Microsoft clusters.

"The success of the smaller system is going to make us want to take a look at the larger systems," he says.

"We will want to consider the larger machines in comparison with the [storage-area network] and other things we are developing," he adds. ■



Stratus' midrange Intel-based server, the ftServer 5600, is designed to provide flexibility and scalability for handling I/O-intensive applications and database applications.

step so that if one component fails, the other continues working. The components are hot-swappable and modular so non-functioning parts can be removed and replaced without interfering with system performance, Stratus executives say.

With the new ftServer 5600 and the ftServer 6600, users will find smaller boxes that offer better processing power, increased memory and disk, and integrated redundant Gigabit Ethernet.

The company says the boxes, which start at \$30,000 and \$60,000, respectively, cost about half what their predecessors sold for when they were introduced a year ago.

The boxes' size also has been reduced: The ftServer 5600 is a 6U system, while the ftServer 5240 it replaces could be configured at 12U or 14U. The boxes now support Windows Server 2003 Enterprise Edition.

In the past, fault-tolerant systems, such as Stratus' Continuum line and NonStop servers from HP, have been expensive and big — geared for vertical markets such as the financial industry. One of Stratus' competitors is Marathon Technologies, which recently filed for Chapter 11 reorganization but is "on the verge of emerging," according to a spokeswoman.

With its ftServer line, Stratus is looking to attract a broader range of customers who might use the servers to handle Microsoft Exchange, for example, or critical database applications and server consolidation.



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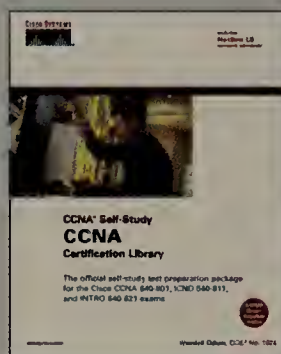
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Correction

■ In the story "WLAN security: A big problem for small nets" (Sept. 1, page 28) Rachel Metz should have been listed as a staff writer at the *Palo Alto Weekly*.



THIS WEEK'S QUESTION:

What was wireless service provider Nextel's original name?

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Infrastructure

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Short Takes

■ **Virginia Polytechnic Institute and State University** will build an InfiniBand cluster using Apple's new dual-processor **Power Mac computer with the 64-bit G5 processor**. When it is completed, the cluster of 1,100 nodes is expected to rank among the most powerful in the world, Virginia Tech said. The Apple cluster will reside within Virginia Tech's Computing Center and the university's Institute for Critical Technology and Applied Science will use it, Virginia Tech said. **Mellanox Technologies** supplied the I/O fabric, drivers, cards and switches for the cluster, **Cisco** provided the Gigabit Ethernet switches, and **Liebert**, a division of Emerson Electric, supplied the cooling system. Shipments of dual-processor Power Macs to regular customers were supposed to start in August, but many users have reported on Apple enthusiast sites that their shipments have been delayed. Apple says the new Power Macs currently are shipping, and the company is increasing shipments of the dual-processor model to production volumes over the next two weeks.

■ **Spectel** is targeting road warriors with its new **MobileConnexion** offering. Announced last week, MobileConnexion integrates with Spectel's voice and Web conferencing bridge and lets users with wireless devices and cellular phones participate in and control a conference remotely. The product uses Short Message Service and instant-messaging technology to invite participants into a conference and offers an auto-reconnect system for dropped cellular callers. Wireless handheld users have an interface for adding, dropping and muting conference participants. Spectel is targeting MobileConnexion at service providers and large corporations. Average price range for a mobile network operator implementation is about \$750,000 to \$1 million. Pricing is dependent on how and where the product is installed.

Site: Lessons from leading users

Bear Stearns is bullish on VoIP

■ BY ELLEN MESSMER

At the New York City headquarters of investment firm Bear Stearns & Co., the murmur of hundreds of traders in stocks and bonds can be heard, hunkered down behind their space-age, flat-screen computers and telecom consoles called turrets.

Long used in the financial industry, these turrets from IPC Information Systems are the cockpit for the data, video and voice communications that Bear Stearns traders depend on for decision-making in the high-stakes world of buying and selling in global markets.

In the past, voice lines to the turrets were linked through a PBX. But for a year now, Bear Stearns has entrusted trader activity to voice over IP (VoIP). With VoIP comes a number of critical issues but none more so than being able to monitor and control the network effectively.

For this critical activity, Bear Stearns plugged more than 150 Network Associates Sniffer distributed appliances for protocol analysis throughout its sprawling high-rise Gigabit LAN. It is the largest installation of Sniffer equipment anywhere, according to Network Associates.

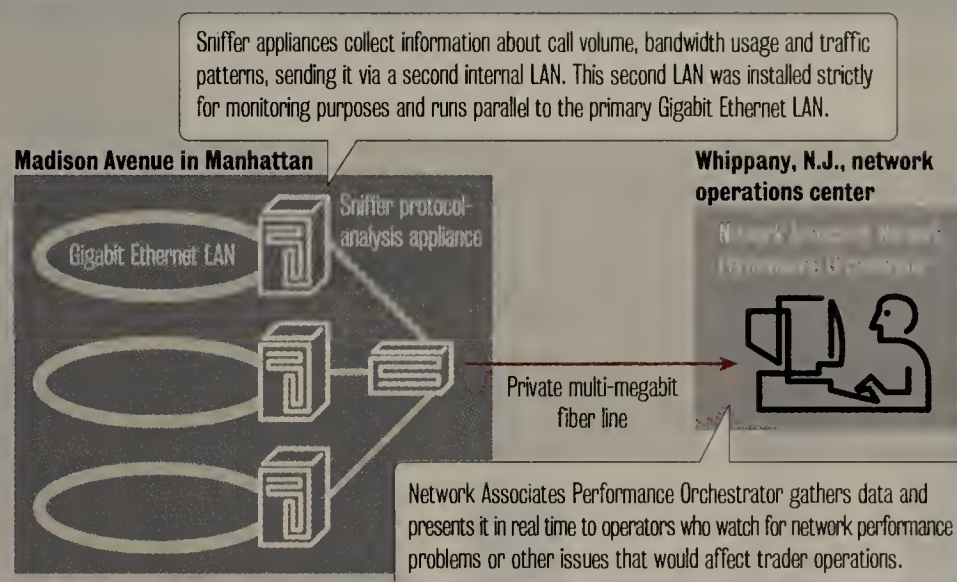
Each Sniffer appliance collects the relevant information about call volume, bandwidth usage and traffic patterns, sending it via a second internal LAN. This second LAN was installed strictly for monitoring purposes, running parallel to the primary Gigabit Ethernet LAN.

From this secondary out-of-band network, the Sniffer monitoring data is sent directly over multi-megabit-speed wide-area private line to Bear Stearns' 24-hour network operations center (NOC) in Whippany, N.J.

The line is part of a larger gigabit-speed metropolitan-area network (MAN) that

Monitoring the situation

Bear Stearns uses more than 150 Network Associates Sniffer distributed appliances to monitor its VoIP implementation.



Bear Stearns operates in the New York City area on dark fiber obtained from Metromedia Fiber Network and Nortel Optera switches. This MAN acts as a private information superhighway between Bear Stearns' Manhattan headquarters, the investment firm's Brooklyn

chestrator. The purpose is to recognize network slowdowns or other problems that would affect trader operations.

"We do this to define any critical dependencies and be proactive in our monitoring," says Anthony Cellante, director of the IT group at Bear Stearns.

He says the Sniffer technology has been a good approach to troubleshooting IP networks and now is starting to be used to analyze application performance as well.

Cellante says the next step will be to take "hoot-and-holler" intercom system that is supported by the IPC turrets and convert that to IP.

Used mostly in the brokerage industry and by utilities, hoot-and-holler is an audio-conference network known since the 1960s to provide dedicated, always-on connections used for two-way business-to-business voice communications.

Typically used to advise brokers on market movement or bark out trading orders, it's a critical element in larger brokerages because its functions, such

See Bear Stearns, page 19

The Sniffer technology has been a good approach to troubleshooting IP networks and now is starting to be used to analyze application performance as well, says Anthony Cellante, director of IT at Bear Stearns.

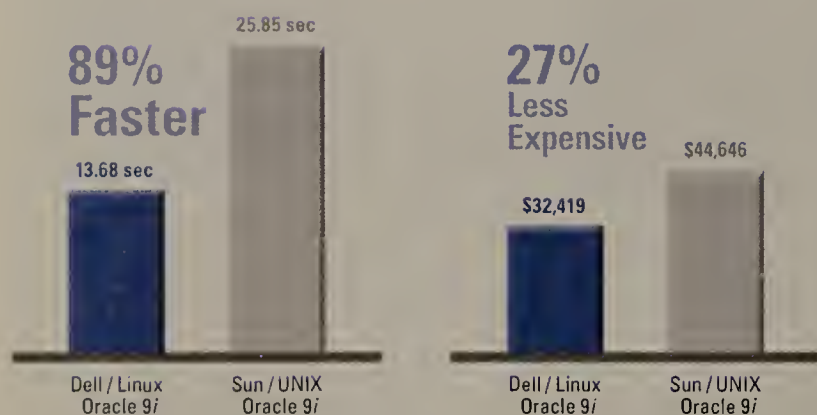
data-processing facilities and the Whippany NOC.

The NOC is situated in six buildings on a 65-acre site. In one of the buildings, the management data is stored and viewed in real time or for historical purposes at the Network Associates management console, the Network Performance Or-

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WIRED
WINDOWSDave
Kearns

Big trade shows have lost luster

Microsoft's TechED, Novell's BrainShare, NetPro's Directory Experts Conference and the Burton Group's Catalyst. By trade show standards, the last two could be considered "intimate little gatherings": They use only one hotel and all sessions are in that hotel building. No need to queue for shuttle buses or taxis, no sitting in traffic for hours to go three miles. You can go back to your hotel room if you need some peace and quiet (or you have a deadline looming).

It did always rankle a bit that I'd spend a week in some large, noisy, anonymous city (Vegas, New York, Chicago, Dallas, Atlanta, Boston) spending more than a monthly mortgage payment on a not-quite-clean hotel room, eating anonymous meat-on-a-stick in an endless round of hospitality suites (which offered little hospitality).

At least 15 years ago, if you visited a vendor's booth you got a T-shirt. An ugly T-shirt, true, but they were great souvenirs for the folks you left at home fighting the network while you "enjoyed" your "vacation" in the big city! Ten years ago, the vendors started making you sit through a presentation before giving you the shirt. Five years ago, you had to sit through the pre-

sentation, fill out the contact card and then one of the 20 to 30 folks in the crowd would get a T-shirt. It just wasn't worth it any more.

Check out the smaller shows. You'll learn more, spend less and enjoy a trade show once again.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the Week

We missed a big birthday earlier this year, the 40th anniversary of the **ASCII code**. Browse over to www.nwfusion.com, Doc-Finder: 7526 (which isn't very organized, but has the important information), and read the fascinating story of ASCII.

Site: Lessons from leading users

Bear Stearns

continued from page 17

as a speed-dial-like feature known as "automated ring-down," allow for immediate communication of information to select brokers so they can act upon it in seconds.

Until recently, hoot-and-holler systems have been entirely circuit-switched, which has meant brokerages often had to budget money for their hoot-and-holler networks for long-distance purposes. But using hoot-and-holler over the Internet or a private IP network could result in savings.

"We're looking at supporting hoot-and-holler requirement on IP and leveraging the capacity on our intranet," Cellante says.

The early success with VoIP has led to Bear Stearns considering whether to add VoIP in other offices around the world for thousands of other traders.

If VoIP can be expanded to other Bear Stearns offices and to clients, the cost-savings could be substantial, cutting long-distance costs for voice calling and the specialized hoot-and-holler intercom systems.

Meanwhile, the shift to VoIP began when Bear Stearns moved into its new Madison Avenue building last year, installing a Gigabit Ethernet LAN based on Cisco Catalyst switches to be able to han-



Bear Stearns traders use VoIP-enabled turrets (above) that promise to reduce maintenance costs and improve productivity, the company says.

dle VoIP traffic loads. The firm swapped out its older circuit-switched IPC Trade-Net MX model turrets for the IPC VoIP turrets for the traders.

"It was a fantastic opportunity, starting from the ground up," Cellante says. He declines to discuss the cost of the project, but he says Bear Stearns wants to make broader use of VoIP because in the long term it could lead to cost-savings through not having to buy circuit-switched telecom lines and services.

With the new VoIP turrets, Bear Stearns took the first step to phase out dual maintenance of its data and voice networks,

reducing maintenance costs.

And the VoIP turrets brought one benefit that traders wanted — letting them sign onto any terminal in any office, something that was not possible with the old PBX-based turrets. This "Phase 1" of VoIP use was completed last year. ■



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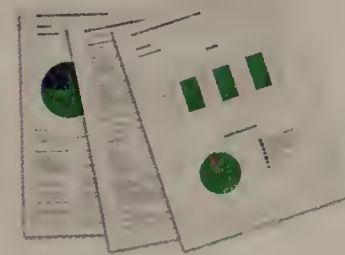
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A black and white photograph of a person rock climbing a steep, layered rock face. The climber is wearing a t-shirt, shorts, and a harness, and is secured by a rope. The background shows a vast, open landscape with more rock formations under a clear sky.

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Short Takes

■ **Iron Mountain** recently announced a service that lets businesses rapidly restore electronic data. The company's **Data Restoration and Electronic Discovery Support** service lets organizations gather, restore, search for, organize and deliver e-mail records required for litigation purposes. Iron Mountain recovers e-mail and electronic records from back-up tapes and other media. It then captures and indexes the records and loads them into the outsourced Digital Archive, where records can be organized for retrieval. A Web-based user interface is available for users to search, retrieve, view and organize assets. The service is priced on the number of tapes retrieved and starts at \$200 per tape depending on how fast the data needs to be retrieved.

■ **Sanctum** last week announced **AppScan 4.0**, the latest version of its security-testing tool for analyzing Web and proprietary applications for possible security holes. AppScan 4.0, which adds support for testing for XML and Simple Object Access Protocol vulnerabilities, costs \$15,000 and runs on Windows 2000 and XP servers.

■ **IBM** has rolled out **three portal-based software packages** aimed at creating online environments to streamline business and improve collaboration for specific vertical industries. IBM executives say they worked with business leaders to design the software packages that are geared for the automotive, government and life sciences markets. The software uses IBM's WebSphere Portal and Lotus software as the foundation for applications that are integrated to create industry-specific collaboration environments. The platforms, which IBM announced last week can work with multiple operating environments, including Linux and Windows, IBM says. Pricing for the packages vary because customers select the building blocks such as WebSphere Portal, which starts at \$87,000, and WebSphere Commerce, which starts at \$80,000.

Server management tools grow up

■ BY JENNIFER MEARS AND DENISE DUBIE

As corporations move toward utility computing, where system resources grow and shrink according to business demands, server management tools are evolving to do more than simply monitor and manage isolated network nodes. Analysts say users can expect these management packages to become increasingly automated, better handle security and patch management, and become usable across a variety of different server platforms.

Analysts say they expect traditional server management packages to become integrated more tightly with storage provisioning tools and to develop more application savvy so users can configure servers to meet specific application demands.

"As the move toward automation goes up and the number of servers under management goes up, the management tools have to get more mature," says Jonathan Eunice, principal analyst at Illuminata. "Putting more elbow grease into managing servers just seems less and less productive and less acceptable."

In the past, server management tools, such as IBM Director, Compaq/HP's Insight Manager, Sun Management Center and Dell's OpenManage, have been the less-than-flashy workhorse tools of data center management. But in the past few years, these types of packages have taken on more sophisticated features such as partitioning capabilities in one management console.

"It used to be people treated server managers to twiddle bits on individual systems," Eunice says. "Now they're doing a lot more to treat the computer as a business asset."

That means users can expect some server management tools — base versions of which typically are shipped with the hardware — to take on features more in line with high-level network management packages such as HP's OpenView, IBM's Tivoli and Computer Associates' Unicenter. These packages can acknowledge network components, but are more concerned with overall network performance.

And those packages that don't take on more advanced features will make the nitty-gritty work they do — such as asset management or patch management — happen more smoothly as they feed into the higher-level tools that are used to

See Servers, page 24

Server status

A sampling of server management software and the systems and applications running on them.

Company	Product	Features
BMC Software	Patrol	Versions for Windows, Linux, Unix, Dell OpenManage, AS/400 and OpenVMS.
Computer Associates	Unicenter Network and Systems Management	Enables server reconfiguration; new Sonar protocol analysis technology included.
Compuware	Vantage for Server Management	Manages Unix, Linux and Windows operating systems from one console.
Heroix	eQ management Suite	Unifies monitoring across Unix, Linux, Windows Server and OpenVMS platforms.
HP	OpenView Operations	Collects traps from hardware; manages all major Unix, Linux and Windows server operating systems.
IBM Tivoli	Tivoli Monitoring	Tracks systems resources; detects bottlenecks; works across Windows, Linux, Unix and zOS platforms.

Software distribution tool on tap from Tally

■ BY JOHN FONTANA

Tally Systems, which offers corporate executives tools for asset management, now is adding software for helping customers deploy software and remotely manage desktops.

The company last week announced its Cenergy client management suite. The suite features TS.Deploy, which automates software distribution to desktop PCs and mobile devices. The suite also includes TS.Remote for remote desktop management and Cenergy Discovery Module for collecting an inventory of desktop software and the hardware on which it runs.

"It is getting harder for asset management tools to be stand-alone products," says David Friedlander, an analyst with Forrester Research. "It is difficult to compete with companies that offer additional functionality. We are seeing more product suites that combine asset and inventory management and deployment capabilities."

Cenergy will compete with similar tools

from Altiris, LanDesk and Novadigm.

Integrated packages are being built because corporate executives want one tool that lets them see what is installed on a client machine or device, and distribute software to or troubleshoot that client.

The foundation of TS.Deploy is its Command Server, which runs on any Open Database Connectivity-compliant database. With the Command Server console, which runs on Windows 2000, users can group target systems by several variables, including size of hard drive, amount of RAM and installed software. Users also can administer directory information to group users who need the same software distributions. TS.Deploy also lets administrators create "packages" of software for distribution including hot fixes, virus updates and configuration changes. The software includes restart controls if a transmission is interrupted, bandwidth throttling, status logging, task scheduling and self-healing applications capabilities.

See Tally, page 24

'NET
INSIDER
Scott
Bradner



It's been quite a few weeks recently on the spam front, and it looks like the good guys are losing big time.

A few hundred thousand new spam relay hosts might have been established around the world, the Federal Trade Commission (FTC) seems to be giving up fighting spam at least according to the press, and a primary source of anti-spam information is under heavy attack.

For a while things weren't looking too bad. Congress finally seemed to get the message that folks in the real world were fed up and wanted legislators to do something. Congress even seemed to have gotten that message loud enough that it was

Is the spam battle joined?

starting to be heard above the roar of donations from those who want to keep filling your mailbox.

Even the Direct Marketing Association — the folks suing the U.S. government to stop the national anti-telemarketing do-not-call list (even though 41 million registrations on that list should be a hint to the DMA that it's on the wrong side) — has offered to work with the FBI to “identify and prosecute spammers.”

But then the chair of the FTC reportedly went into wet-blanket mode and pooh-poohed all of the current congressional proposals. Although the actual speech (see www.nwfusion.com, DocFinder: 7525) is far better than the reports would have indicated (even if he seems to like “the flow of useful information to consumers” more than I do — by a few orders of magnitude).

But now all hell has broken loose. The latest generation in the evolution of the SoBig virus (or worm, depending on your defini-

tion) struck on Aug. 19. I didn't get my first SoBig message until early that morning, but in the following week and a half I've received 7,917 to my own mailbox.

I cannot begin to imagine how many went to the central mail servers at the university. Press guesses (I'd call them reports but that implies more precision than is the case) have between 100,000 and 500,000 machines compromised. In the past few days there has been a lot of speculation that one of the aims of SoBig, other than the propagation of the species, was to set machines up to be used in the future for relaying spam.

A recent *Boston Globe* report said distributed denial-of-service attacks have hit anti-spam blacklist services hard.

These services maintain spam relay address lists so ISPs and companies can block all incoming mail from them. These services, while controversial, have been quite effective in reducing the amount of

spam that gets through to the places using them.

Between SoBig and the blacklist attacks, the bad guys are in full counterattack.

Some people are trying to fight back. EarthLink and Amazon.com filed suits against spammers or online marketers within a few days of each other.

But that is a long row to hoe.

The FTC chair mostly seemed to be hoping for a technical solution to the spam problem — don't hold your breath. Meanwhile maybe Congress can make it easier for the FTC and others to attack the attackers and the FTC can be less despondent.

Disclaimer: At Harvard, guesses are called “research.” The above is my “research.”

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Servers

continued from page 23

manage heterogeneous servers, storage and other systems.

“We're getting to the point where a lot of these functions, whether it's remote control or asset management are getting pretty good, but there is still a lot of room to smooth things out,” Eunice says. “Patch management is a good example ... I've heard from two or three vendors about substantial improvements in the precision that you can get [from] those patches and in the security model for handling those patches.”

Analysts don't tend to track revenue for low-level hardware man-

agement tools because they ship with servers. But the overall infrastructure performance management market, which includes server management, is pegged at about \$5 billion, according to Giga Information Group. The firm says BMC Software leads the server management segment, followed by IBM Tivoli, CA and HP.

HP is moving ahead of competitors with its low-level server management tool, analysts say, as it preps an update to Insight Manager that will let users manage Unix, Linux and Windows servers from one console — something that today must be done by hopping from console to console. HP is expected to soon begin ship-

ping the tool, code-named Nimbus — an amalgamation of Insight Manager — which manages its Intel-based ProLiant servers, and Servicecontrol Manager, which handles HP-UX, its version of Unix.

Another vendor focused on managing heterogeneous systems is Amphus, which was founded in 2000 as a blade server company, but now focuses on server management. It recently rolled out an update to its ManageSite server management software to support heterogeneous servers with Intelligent Platform Management Interface so users can provision, monitor and manage any IPMI server from one console. Dell, Intel, HP and NEC developed IPMI to define standard interfaces for monitoring and managing servers.

build, patch and update servers from a central networked source [operating system, software, patches, BIOS, firmware, drivers] with minimal server interruption,” he says. “Then we would like a reasonably priced monitoring tool to provide scalable, application-specific — operating system, SQL database, e-mail — monitoring with efficient logging, robust process/performance rules and alerts, and graphic, Web-based reporting.”

Rick Beebe, manager of systems and network engineering at Yale University School of Medicine in New Haven, Conn., says one of his biggest server management problems is controlling access to servers. “Managing access is [a] ... big resource consumer,” he says.

Controlling access to network resources is an area where analysts expect server management vendors to focus. “There are larger numbers of administrators working on these servers, and [server management tools] are gaining capabilities like hierarchical access so you can have some administrators who are really king of the crowd, while others can only control some servers or some functions,” Eunice says.

What users want

James Olson, CIO at Waterbury Hospital in Connecticut, says he's looking for management tools that will let him get a good read on how servers are handling specific applications.

“In healthcare, we need products that can go to the lowest level of network device and ascertain its health,” he says. “We need to

centralize the running to test applications to ensure devices are operating within specifications. This is very important for [Food and Drug Administration] compliance, and the record keeping is important.”

Server management vendors likely will roll out this type of application-aware capability, says Corey Ferengul, vice president and principal analyst of operations strategies at the Meta Group.

“The coolest thing in the works is linking these server management tools with monitoring and having them automatically trigger deployment or redeployment of servers based on monitored needs,” he says. “There is quite a bit of logic generally necessary to reprovision a device — one being used for another purpose, for example — but the logic exists today to provision from a pool of waiting devices.”

IBM, for instance, is prepping Tivoli Intelligent Orchestration software, which will let users provision servers to automatically respond to application demand and then reprovision themselves to run other applications as demands dictate.

What users should expect, analysts say, is for server management vendors to simplify their tools and make it easier to manage multiple, heterogeneous servers in a way that links them with other important business systems.

Users can expect “more automation, more coverage of software. It will not be enough just to do the server and the operating system, but the tools will have to impact the software layer as well. ■

Tally

continued from page 23

“This is a significant change for us from being known as an asset management company to moving forward into configuration management,” says Sarah Davies, product manager for TS.Deploy.

The TS.Remote portion of the Cenergy suite allows for remote management of PCs and devices. The software lets users request help through a chat capability or for administrators to perform support without the user being present. The Discovery Module is a lightweight inventory collection system that records hardware, software and registry and desktop settings. It does not provide history and usage data, which is part of Tally's full asset management product, TS.Census.

Cenergy, however, integrates with TS.Census, letting users access the Cenergy tools from the TS.Census interface.

Pricing for the Cenergy suite starts at \$87 per user for 1,000 users. ■

Management nightmare

With each patch application taking about three to four hours, Meta Group estimates system administrators spend up to **1,920** hours per month manually applying three or four patches to 120 servers.

Standards change everything

Analysts say standards such as IPMI, Web-based Enterprise Management, Common Information Module and SNMP will become more important as vendors recognize the need to manage heterogeneous platforms and systems, and to do it without requiring the time-consuming task of updating agents on individual servers.

“It all comes down to keeping [servers] available, maintained and performing, all this while not requiring an army of administrators that explode our [total cost of ownership],” says Ulrich Seif, CIO at National Semiconductor in Santa Clara.

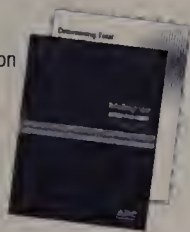
Seif says he's looking for more than what's offered in server management products today.

“Ideally, we would like deployment functionality to inventory,

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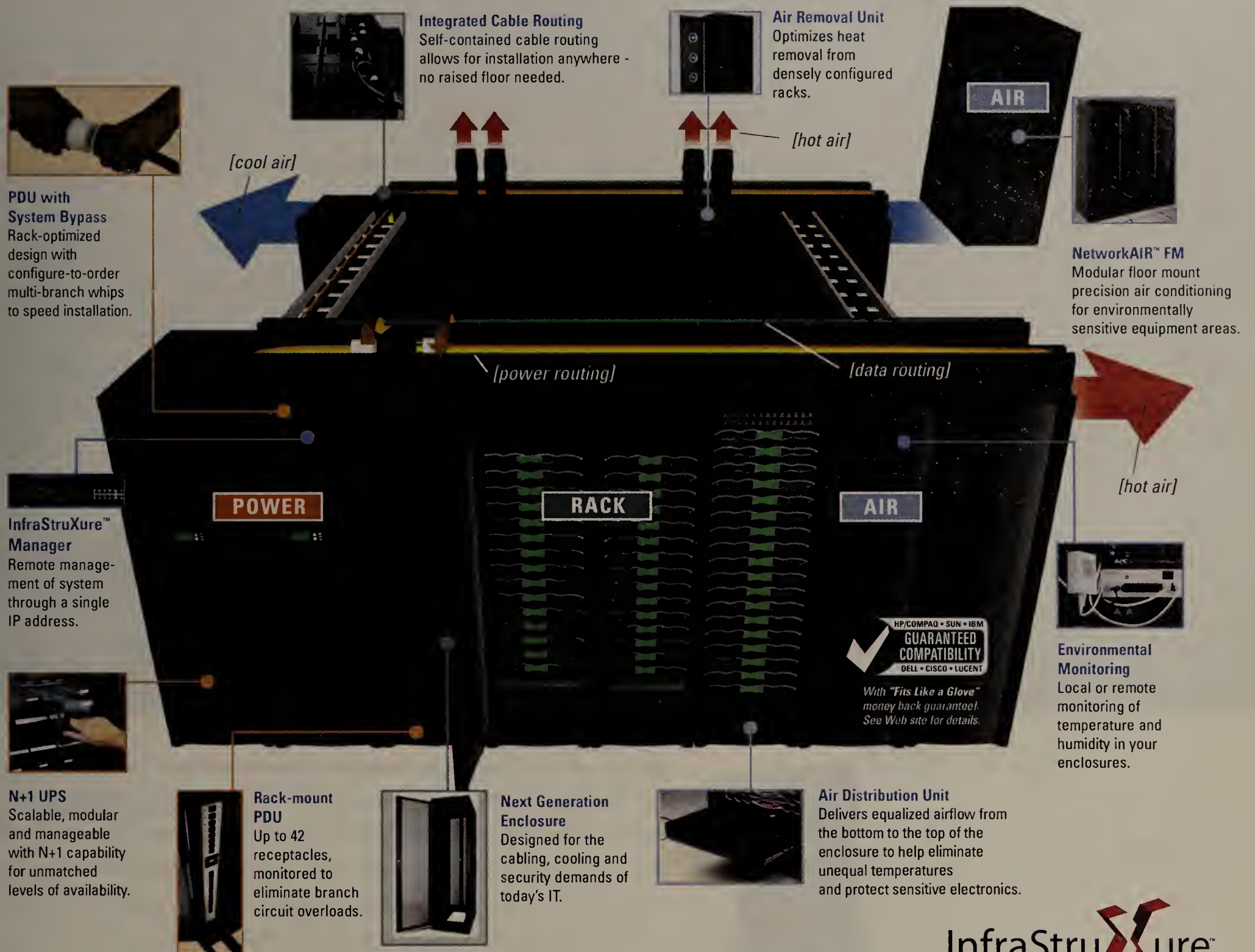


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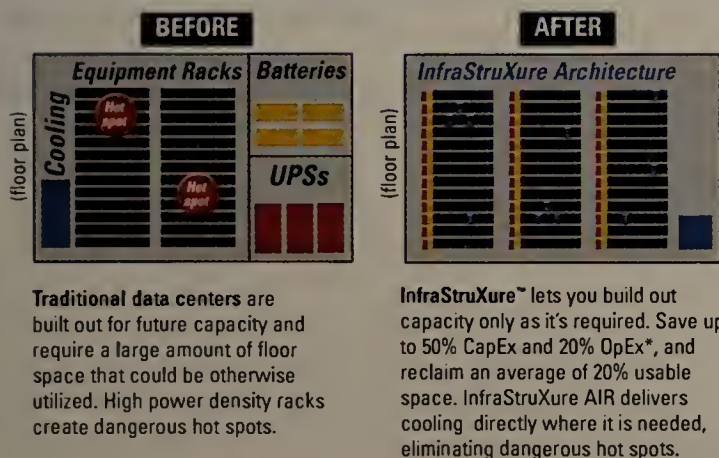
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Special Focus

APPLICATIONS: IBM, Microsoft and OASIS debate SPML.

Proposed provisioning technology set to go

■ BY JOHN FONTANA

A forthcoming XML-based standard is living a double life. It is expected to foster integration of current provisioning and identity management software now and will evolve to support Web service in the future.

The proposed standard is the Service Provisioning Markup Language (SPML) 1.0, which is set for ratification Oct. 31 by the Organization for the Advancement of Structured Information Standards (OASIS).

The 1.0 specification is designed to help network executives break the logjam that holds back interoperability among current provisioning systems. These systems let companies automatically set up and deactivate user accounts across corporate networks and applications.

But critics, namely IBM and Microsoft, say SPML in its 1.0 form lacks features beyond simple addition and deletion of users. They say it's not flexible enough to integrate into the palette of Web services standards they are developing, known as WS-* (pronounced WS-Star), which includes WS-Security and WS-Federation.

The two companies are working with OASIS to correct those shortcomings.

The protocol, therefore, appears to satisfy short-term corporate needs while creating a starting point for developing a long-term solution that will work within Web services deployments.

"What this means is that SPML 1.0 will not become the be-all and end-all provisioning standard," says Daniel Blum, an analyst with Burton Group. "Something else will come along." He says Microsoft and Web services standards partner IBM, which last year acquired provisioning vendor and SPML co-creator Access360, have valid points on the long-term viability of SPML.

"But provisioning could take years to work out in the Web services framework, so why wait for interoperability between traditional provisioning systems and applications," he says. "We should not let 'best' be the enemy of 'good.' Companies need something now, so SPML 1.0 is a good first step."

It's a good first step because today different provisioning systems can't talk to each other. That fact makes it difficult to link multiple provisioning systems across business units or with business partners, a nagging issue in large corporations, according to Burton Group.

Provisioning systems also use proprietary technology to talk to the target systems on which they want to set up or deactivate accounts, which forces companies to use custom connectors from each target system to the provisioning system.

SPML 1.0 will foster interoperability on both fronts and let companies focus on the business rules for provisioning user accounts and not on the technology to wire everything together.

The interoperability SPML fosters was demonstrated in July when 10 vendors — BMC Software, Business Layers, Critical Path, Entrust, MyCroft, OpenNetwork Technologies, PeopleSoft, Sun, Thor Technologies and Waveset Technologies — held an interoperability test to show the addition and creation of users across their provisioning systems.

"Enterprise architects should start to consider SPML as real, deployable and valuable," says Darran Rolls, chairman of the Provisioning Services Technical Committee

needs to be taken now to ease the deploying of provisioning systems, which are desired for the security benefits of automated account deactivation as much as account creation services.

"Standards are definitely the No. 1 need," says Pete Narmita, director of global IT for a leading pharmaceutical company. "Any system that requires an ID and password needs to have a provisioning module, and it should be based on standards."

Narmita, who helped build a provisioning system for 65,000 users, says every time a new application is added, his company has to work with the vendor to tie it into the provisioning system.

"It's a very time-consuming and expensive process," he says. He has eased the process by converting to Business Layers' eProvision Suite, which provides some application connectors and plans to support SPML.

Narmita says he is evaluating SPML and hopes every vendor embraces it.

"We are waiting for the big guys — Microsoft, IBM, Oracle — to make a commitment," Narmita says. "The only commitment that I have seen them make is to SAML. But SPML is the real key. It's not one or the other, they work together."

Working together describes what is happening now among IBM, Microsoft and OASIS. For its part, Microsoft says it won't support SPML 1.0 because its features are too narrow.

"The specification does not have higher-level provisioning support," says Jackson Shaw, technical product manager for directory services at Microsoft. The protocol supports adding and deleting users but not suspending or moving accounts, he says.

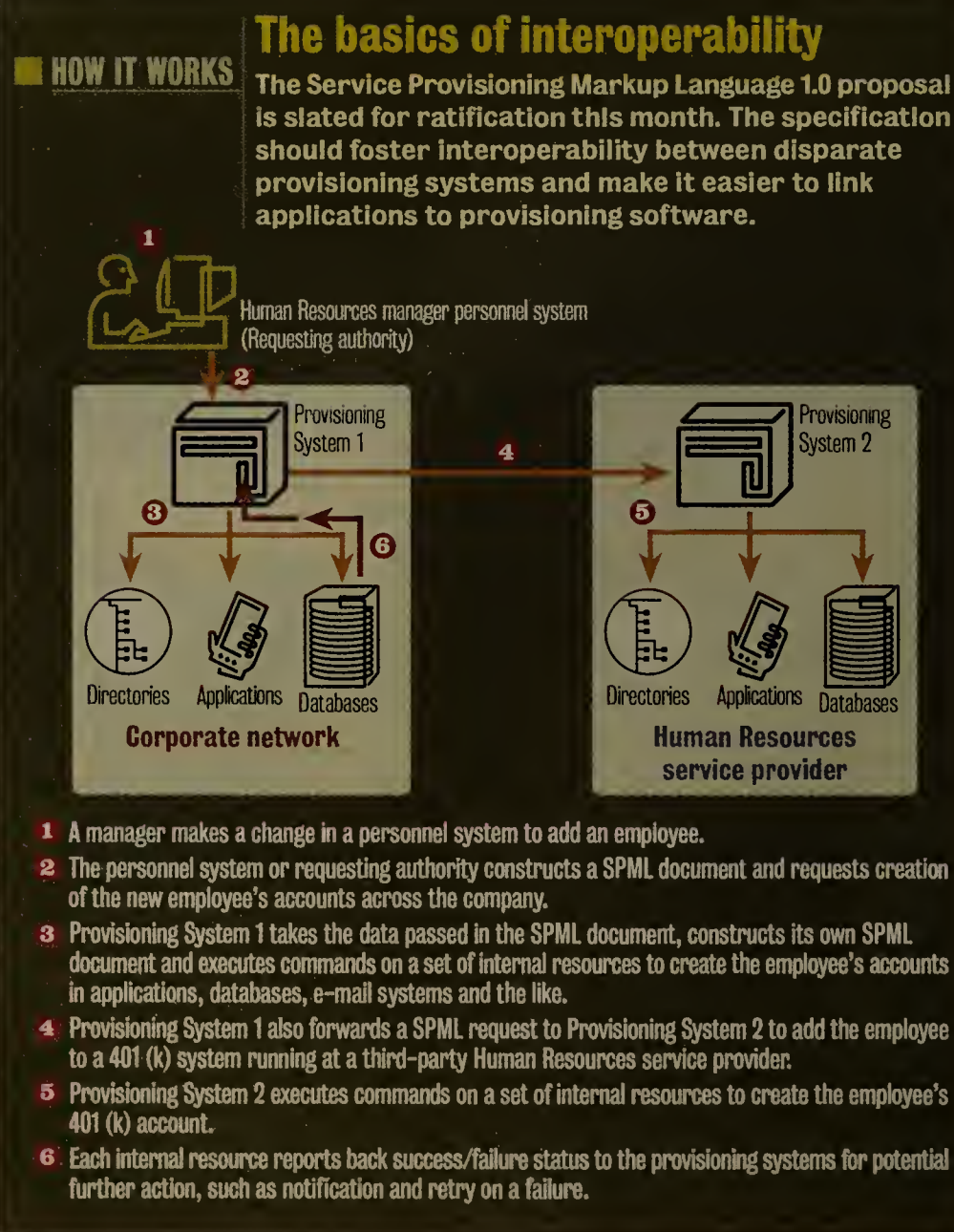
IBM also will not support SPML 1.0, says Jeff Curie, program director for Tivoli identity management. In April, IBM asked the PSTC to modify SPML to make it more flexible and align it with the WS-* family of Web services standards. The PSTC refused, and IBM abandoned the 1.0 specification, which uses as its foundation the Directory Services Markup Language 2.0, an XML representation of the Lightweight Directory

Access Protocol (LDAP).

"What that brings with it is the limitations of LDAP," Curie says. He says those limitations include the fact that SPML is not a self-describing protocol like other WS-* specifications. For example, SPML cannot say that the data in a field is a date: Provisioning systems must already understand the SPML format of a date, he says.

IBM and OASIS say they are working to address the issue, but IBM does not rule out creating its own specification under the WS-* framework.

PSTC's Rolls says IBM, Microsoft and OASIS are working on making SPML a unified effort that incorporates requirements from both vendors. ■



(PSTC) at OASIS and director of technology for Waveset.

What's also becoming real is the relationship between SPML and the Security Assertion Markup Language (SAML), an XML-based standard for exchanging user authentication and authorization data across corporate systems that OASIS ratified in October 2002.

Together, SAML and SPML provide a standard way to create user accounts and then validate these users as part of an identity management infrastructure. The two are the glue for integrating Web single sign-on and provisioning software. SPML can use a SAML credential as one way to identify users to be provisioned to corporate systems.

Corporate end users say this first step toward integration



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Short Takes

■ **Riverstone Networks** says it overstated fiscal 2002 and 2003 revenue by \$98.8 million. An ongoing internal audit turned up the discrepancies, which initially found that the two fiscal years were overstated by \$51.5 million. The internal review was prompted by requests for information and then the launch of a formal investigation into Riverstone's accounting practices by the Securities and Exchange Commission.

Separately, Riverstone has named former Nortel's Enterprise Networks chief **Oscar Rodriguez** as its president and CEO, succeeding acting CEO **Romulus Pereira**. Pereira will continue to serve as Riverstone's chairman.

Long-haul 'fiber glut' persists

■ BY STEPHEN LAWSON

The "fiber glut" that has been widely blamed for a weak long-haul telecom equipment and services market still exists in most areas, but there are signs that more existing fiber needs to come online and demand might soar in the next few years.

Carriers and industry analysts say they're confident there is plenty of fiber in the ground after the building boom of the late 1990s. However, the oversupply is bigger in some areas than others, and carriers might have to light up more fiber pairs now in the ground to meet growing demand.

Unfortunately, most companies can't tap into that bargain, long-haul capacity without going through the local loop. For them, the cost of WAN services usually is dominated by the price of the last-mile connection provided by a former regional Bell operating company, says Dave Passmore, an analyst at Burton Group. Only 10% of business locations have fiber going to them, he says.

"They're having to buy network services

Slowdown

Spending on WDM equipment used to light up long-haul fiber fell from \$5.1 billion in 2000 to \$376 million last year, according to RHK.

that require the last-mile connection, and so they're still being held hostage by the [incumbent local exchange companies]," he says. "They're not in a position to take advantage of this glut of fiber in the core."

Meanwhile, there are indications that the recent deep slump in spending on equipment to light up that fiber might be ending. Within a few years, new ways of organizing and using IT resources might change the picture dramatically, experts say.

The market for wavelength-division multiplexing (WDM) equipment to light up long-haul fiber plummeted from \$5.1 bil-

lion in 2000 to \$376 million last year and an estimated \$269 million this year, according to RHK analyst Ron Kline. But RHK expects revenue to pick up next year and increase slowly to \$307 million by 2007. Growth from spending by carriers that are responding to demand will drive that recovery, Kline says.

"They will be very targeted deployments. It won't be a mass build like we've seen in the past," Kline says.

One possible source of that growth is Verizon, which plans to light up long-haul fiber across the U.S. as it further develops its long-distance voice and data business, says Ellis Edwards, a spokesman for Verizon. Most of that will be fiber it leases from existing long-haul providers.

AT&T is expanding its network outside the U.S. to meet demand for data services by multinational companies, says Dave Johnson, an AT&T spokesman. That network, which mostly has capacity leased from other carriers, serves 120 cities.

See Fiber, page 34

Q & A



Boingo weighs in on Wi-Fi

Boingo Wireless helped pioneer the Wi-Fi services market when it launched two years ago. Now the company links 42 wireless LANs operated by others to give users Internet access at speeds of up to 11M bit/sec around the world. Boingo also develops software that the company says lets 150,000 users sniff out available hot spots and provides

encryption. Network World Senior Editor Denise Pappalardo recently spoke with Boingo President David Hagan about Wi-Fi and his company.

On Wi-Fi hype: The hype is great. Two years ago there wasn't much interest or awareness, and now there is obviously keen interest. That makes it easier to call large carriers and talk about partnering.

What customers want: Enterprises are looking to make their mobile employees, their extended enterprise, more productive. Dial-up, to me, is not a very good solution. I'm a traveler, and I've used dial-up for years. I cut the cord and will never go back. You're seeing the same thing in the enterprise. They have dial-up solutions generally today, and they're looking to augment that and then ultimately replace that with Wi-Fi. You see that happening at a pretty rapid pace.

What enterprises want is a secure remote solution. Fiberlink [which sells Boingo's

offering to businesses] has a policy management platform that combines with Wi-Fi and their dial-up solution so employees have connectivity wherever they go.

Who's buying: The strong market for Wi-Fi right now is the business traveler. This market is split almost down the middle between people who have an individual ability to make a decision with software on their laptop and those that are corporately controlled. If you work for a larger company, then it's probably corporately controlled. For people who work for small companies, they can make an individual purchase decision.

Who will win at Wi-Fi: The big brands. Companies that already have a varied service model whether wireless or wired. They can [bundle Wi-Fi] with existing offers.

Pricing: We pioneered the "connect day" concept. A user can connect at a location and use as much as they want, even go off and go back on, for a 24-hour period. We have priced that on a wholesale basis to our provider partners and at a retail level. Customers don't want to feel like a clock is running, and they don't want to figure out how large the files are they are looking at.

Challenges: What's great about Wi-Fi is that devices are proliferating. So laptops are being produced with Wi-Fi embedded. You don't even need to buy an external Wi-Fi card. PDAs are going in the same direction. The devices in the hands of the consumers are out there and are going to be out there in large numbers, so the challenge is making sure the networks are there to support those devices. Get as much footprint, or network deployment, as possible to be sure all of those devices can connect to the network.

12-month game plan: We'll continue to build the largest, managed, aggregated network of Wi-Fi networks, license our client software to leading service providers and innovate on the industry's leading Wi-Fi client software. ■

EYE ON THE CARRIERS

Johna Till Johnson



MCI charges: Oklahoma gets it right

Of course, lawyers for the gang of "alleged" crooks insist the crew has done nothing wrong. Fortunately, their case is looking weaker and weaker, as proof of the company's criminal financial activity continues to grow (more on that in a minute).

If there's one thing I'd like to make perfectly clear, it's that I believe in individual responsibility. There's no such thing as the "entity" of MCI (or any other company). There are only individual executives, employees and shareholders. And let's not forget customers and competitors, who can be helped or damaged by actions of the aforementioned individuals.

Punishing "MCI" as a corporate entity doesn't make a whole lot of sense if the individual executives who caused the damage are let off scot-free. Step 1 has to be punishing the bad guys — in particular, the

folks at the helm during the period in which MCI engaged in its criminal activities. That's the piece the feds flubbed — they haven't even gotten around to indicting Ebbers, if you can believe it.

Good for Drew Edmondson, Oklahoma's attorney general, who reportedly said, "I cannot understand the federal government bailing out felons." Amen, brother.

What about the growing body of evidence of MCI's additional criminal behavior? Several states are filing additional charges against the company, including West Virginia (civil charges for tax fraud); Oregon (civil charges regarding misleading information); Alabama (possibly filing civil charges for tax fraud as well as criminal charges); New Mexico (civil charge attempting to recoup bond losses). And let's not forget MCI's competitors, including

AT&T and Verizon, which are suing for toll evasion.

To the extent that these charges are substantive, they should be scrutinized by the courts. (The tax fraud is a doozy.) If MCI is found guilty, appropriate action should be taken — I hope in the form of large fines that go on the company's post-bankruptcy books and that would have to be paid off the hard way.

But for the folks at the helm of the former WorldCom, the message needs to be crystal clear: "Go to jail. Go directly to jail. Do not pass Go. Do not collect \$200." Kudos to Oklahoma for making that point.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Fiber

continued from page 33

But long-haul fiber is abundant in most places. AT&T is probably far from exhausting the capacity of networks on its international routes, Johnson says. The same is true of AT&T's U.S. network, where the company has no major expansions in the works.

As an example of overcapacity, of the long-haul fiber that goes through Chicago, last year only 3.9% was lit, according to TeleGeography. Of the lit capacity, only 2.7% was dedicated to IP bandwidth and probably less than 1% was dedicated to voice

and other types of networking, says TeleGeography analyst Alan Mauldin. The rest of the lit capacity was not deployed. It's unlikely all of that is being held back by carriers as inventory or by corporations as back-up capacity, he adds.

Not all routes are as wide-open. TeleChoice said in July 2001 that it had found the supply of already lit fiber near a critical point on 14 of the 22 intercity routes it studied in the U.S. On those routes, 70% or more of the lit fiber was in use, a threshold at which carriers usually expand capacity.

Based on one growth scenario TeleChoice studied that year, on half of the 22 routes, all the lit and dark fiber would have

been used up by 2006. Growth didn't happen at anywhere near that rate, says Russ McGuire, who was lead analyst on that report and is now an independent consultant at Seek First Networks.

As more organizations start to use grid and on-demand computing and to virtualize their processing power and data storage, demand for long-haul capacity could grow dramatically, says Frank Dzubeck, president of consultancy Communications Network Architects.

Grid computing brings together the resources of one or multiple organizations to solve computing problems. On-demand computing lets a company turn on capa-

city on the spot based on how much power is needed. By 2005 or 2006, those could become "virtual" resources that might come from just about anywhere and use long-haul capacity along the way, Dzubeck says. To be useful, grid and on-demand computing eventually will require at least 100M bit/sec of capacity, he says.

By that time, more consumers will use broadband and will take advantage of more bandwidth-hungry applications, he adds. Networked remote sensors also will start to consume bandwidth.

Lawson is a correspondent with IDG News Service's San Francisco bureau.

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Robert H. Dorin

Robert Dorin, a member of Aberdeen's server team, focuses on server solutions for high-end enterprise applications. Dorin joined Aberdeen in 1996 and has since followed Unix and Windows servers and platforms and ERP systems. Dorin has an ScB in Applied Mathematics from Brown University, an MS in Computer Science from the State University of New York at Buffalo, and an MBA from Northeastern University.

UNISYS PRESENTS ask THE EXPERT

*A few minutes with Robert Dorin,
Vice President, Research
Enterprise Server Solutions
Aberdeen Group*

Changing the Economic Equation

> Do you think "Business Intelligence" for the entire enterprise is reality, and why?

The concept of BI for the enterprise is reality for some enterprises, but not for many. Many organizations still analyze business data behind closed doors and pass the directives down to business managers who understand neither the framework of the data that's been examined nor the context for the decisions that are being made. Technology is available to deliver BI for the enterprise, but each organization must decide how to implement access to data across different business units and departments.

"The ability to react and respond quickly to buying patterns and other external events is critical to gaining advantage."

> What advances are being made within organizations to forward decision-making at all levels of the organization?

This relates back to the first question. When different departments within an organization are able to work from a common data analysis framework—for example, how revenues, profitability, and other key performance indicators (KPIs) are being measured—the potential for accurate and consistent decision-making is much greater. BI products provide the technology to deliver such a common framework.

> Can "Business Intelligence for the Masses" create a strategic competitive advantage for an organization against its competition?

Absolutely. The ability to react and respond quickly to buying patterns and other external events is critical to gaining advantage. Complex data analytics capabilities are valuable, but the ability to share the data and the result of

the analysis not only within an organization but also between partners—for example, a retail outlet and its suppliers—is extremely powerful.

> What has changed from the traditional Data Warehousing efforts of the 90s to the Business Intelligence projects that are being implemented today? (users, cost, application, process)

Obviously, PCs and Web browser access are more ubiquitous today than they were even 10 years ago. Data sharing enhances the level of cooperation among departments and among business partners. While BI software ranges from high-end (i.e., expensive) analytics to less sophisticated (Excel-driven) tools, the infrastructure to deliver BI to many more users in the enterprise is inexpensive and, in most cases, already in place.

> In today's economy, which businesses or business practices have the most to gain from Business Intelligence?

Those businesses that are able to make changes in their product marketing quickly and frequently can benefit a great deal from BI. Retail businesses such as consumer packaged goods manufacturers are constantly making pricing, packaging, and placement decisions. Banking and financial services similarly function in a dynamic and volatile environment. With many businesses accessible to their customers online, data can be gathered almost instantaneously after implementing a change. BI plays a critical and fundamental role to online services, such as eBay, amazon.com and the travel sites.

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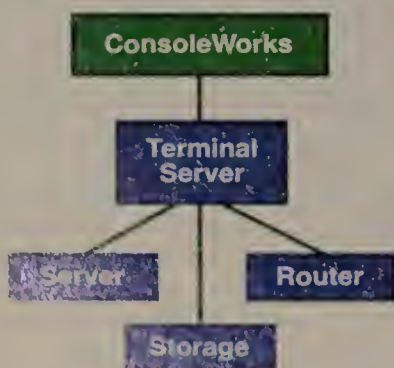
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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

XKMS does the heavy work of PKI

■ BY RICH SALZ

Public-key infrastructure is well suited for securing Web services, but PKI deployment is too cumbersome and costly for the technology to achieve widespread use. An upcoming standard from the World Wide Web Consortium aims to reduce the costs of PKI without sacrificing its benefits.

XML Key Management Specification (XKMS) borrows the best of PKI without reducing scalability or security. XKMS creates a trust service that shields clients from complexity by providing an XML interface to PKI. The proposed standard is in the last-call phase with the W3C and several vendors are starting to develop XKMS toolkits and applications.

PKI scales well because it does not require an online service such as Kerberos Key Distribution Center. Because Kerberos uses shared-secret cryptography, it's a likely target for hacker attacks. And because it contains so much sensitive information, it is usually not widely replicated, making it a potential single point of failure.

PKI avoids both of these issues by using

a set of public and private keys: Private keys are held only by an individual party; public keys can be distributed widely. With a PKI-secured message, an online service such as the KDC is not needed for any two parties to communicate securely. In addition, the ability to have a hierarchical key structure, and real-time analysis of the path through the hierarchy, makes it possible for parties to securely communicate without prior business arrangement.

With XKMS, a client and application server share an XKMS service to validate each other and to process requests between them. XKMS replaces many PKI protocols and data formats, such as Certificate Revocation Lists, Online Certificate Status Protocol, Lightweight Directory Access Protocol, Certificate Management Protocol and Simple Certificate Enrollment Protocol, with one XML-based protocol. XKMS also can be implemented client-to-client, server-to-client, server-to-server, and so forth.

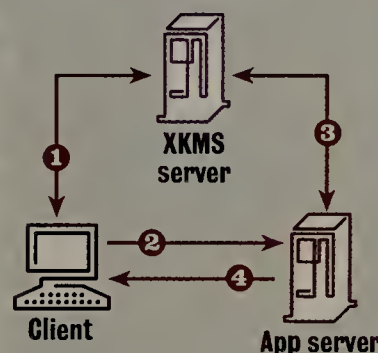
The XKMS protocol provides three fundamental operations: locating which retrieves a cryptographic key so that it can communicate securely with another entity; validating, which makes sure the key is active and has not been revoked; and registering, which issues, reissues and revokes keys.

Unlike an XKMS service, PKI requires that every user and every application verify the identity of everyone they communicate with and ensure that the counter-party identity is appropriate for the transaction and that the identity is still valid (not been revoked). Unfortunately, the infrastructure needed to support this places such burdensome demands on application developers that it is difficult to develop a secure

■ HOW IT WORKS

XKMS

The XML Key Management Specification secures Web services. Here, the protocol is used to validate requests between a client and application server.



- 1 Client validates application server via XKMS service.
- 2 Client sends a request to application server.
- 3 Application server validates the request via XKMS service.
- 4 Application server processes client request.

application that achieves these goals.

Traditionally, with PKI all trust decisions are offloaded to the crypto consumer. This requires complicated programming libraries and configuration information. For an example of this, look at the "trusted issuers" list in the security parameters sec-

tion of your Web browser.

With XKMS, trust decisions are given to a common server so they can be centralized and applied consistently across platforms. The only configuration information an XKMS client needs is the URL of the server, and the certificate the server will be using to sign its replies. Different trust models can be supported by using different URLs.

XKMS works with the XML Digital Signature and Encryption standards. For example, the Locate and Validate operations take a <ds:KeyInfo> element. This means that a message receiver can verify the identity of the sender by "plucking out" the element, putting it in an XKMS call and looking at the server's response. The server can respond with just the cryptographic key (for doing the signature math on small devices such as cell phones); a user-friendly name for the key (for example, mailto:rsalz@datapower.com, for use in browsers and Web pages); an assertion about the validity of the key (such as it has not been revoked); or a combination of the three.

Many XML Web services standards, including Security Assertions Markup Language and WS-Security, use digital signatures to protect the content of authentication and message data. Although it has not yet received the publicity that those specifications have received, XKMS might be the specification that makes Web services implementation feasible.

Salz is chief security officer for DataPower Technology and a member of the WS-Security and XKMS working groups. He can be reached at rsalz@datapower.com.

Got great ideas?

■ Network World is looking for great ideas for future Tech Updates. If you want to contribute a primer on a specific technology, standard or protocol, contact Amy Schurr, senior managing editor, features (aschurr@nww.com).

Ask Dr. Internet

By Steve Blass

We installed some workstation packet filtering firewall software and found a large number of Internet Protocol 2 packets on the network. What are they used for, and is this a threat?

The Internet Protocol 2 packets you see at the workstations are Internet Group Management Protocol (IGMP) packets coming from routers that keep track of memberships in multicast network groups. Multicast routers use IGMP to discover what groups have members on their net-

works. The routers send regular queries to the "all-systems" multi-cast address (224.0.0.1). Hosts that receive the queries reply with one "host membership report" response message for each group the host belongs to, unless they hear another host reply for that same group first. Multicast routers do not need to keep track of every host in every group, they only need to keep an accurate list of the active groups. If the router does not hear any member reports for a particular group within a pre-set timeout period, the router assumes there

are no active group members and will not forward multi-cast group packets from remote domains for that group onto the local network. IGMP primarily is used on point-to-point connections between routers and hosts, and most likely does not represent a security threat to your workstations by itself.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD
INSIDE THE
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Gibbs

Keeping in line with Backspin's current focus on anti-spam technology and the fact that we just received an update of a product that we've meant to review for some time, this week we'll look at an established mail server with new anti-spam features. The product is IMail from Ipswitch, and the release is Version 8.1. We started using this product a couple of versions ago and have been impressed with its stability and features.

IMail supports all the standard e-mail protocols — Simple Mail Transfer Protocol, POP3 and Internet Message Access Protocol 4 — and also includes Lightweight Directory Access Protocol Revision 3, Finger, Whois and password servers.

IMail offers Web Messaging with spell-check, address book and multiple attachments, and Web Calendaring to keep schedules, appointments, task lists and date reminders. Both Web Messaging and Web Calendaring are based on customizable Web templates so that you can provide mes-

Ipswitch IMail now includes anti-spam

saging and calendaring for your organization. Web Messaging and Web Calendaring also support Secure Sockets Layer connections, and you can choose whether users must use SSL, choose to use SSL or not use SSL at all.

IMail supports multiple domains (five for the Small Business Edition and unlimited for the Professional version), so you can host mail for multiple organizations or groups on a single server. Ipswitch claims impressive scalability to more than 100,000 accounts on a single server and support for more than 1 million messages per day.

User account information can be taken from the Windows NT/2000/XP user database, or IMail can use its own database or an external Open Database Connectivity (ODBC) database. The advantage of using ODBC is that user information can be extracted from Microsoft Access, SQL or Oracle databases, which makes it easy to integrate the server with customer billing, enrollment or other support systems.

The IMail server includes e-mail lists and supports mail delivery rules so messages can be filtered based on the content. IMail also can route messages to alphanumeric pagers, and Ipswitch offers an add-on to send e-mail to fax machines.

IMail server management is very good.

You can control the various services using the IMail Administrator program or through the administrative Web interface. Part of the management system is a monitor service that watches all the IMail services, and restarts and reports on services if they stop.

As you might have noticed, many of these features point to one of the key positioning issues of IMail: It is designed to scale to the demands of enterprise or ISP use.

The anti-spam features include Real-time Blackhole Lists (RBL); MAIL FROM verification; Reverse DNS Lookup to verify the IP address of sending servers (this prevents spoofing); EHLO/HELO domain validation (verifies that the sending mail server domain exists in DNS); kill lists (blocked e-mail addresses and domains); trusted IP address; Bayesian statistical filters; phrase filtering; white lists; and sophisticated HTML filtering that detects nested tables, hyperlinks, images, scripts, invalid tags, mailto links, deceptive URLs and embedded comments.

The RBLs are third-party services that list the domain names and IP addresses of known spammers. IMail comes with five free third-party RBLs and you can add additional lists as required.

When a message isn't blocked by the blacklist or

is passed by the whitelist, its authenticity is tested first by checking against the RBLs and then by other various DNS-based tests. Finally the content filters are applied and suspected spam is deleted, forwarded to another account, or an X-header is added.

X-headers are custom headers added to a message that can contain any data and, in the case of IMail, their names always begin with X-MAIL-SPAM-, followed by the condition that makes them suspect. This then lets e-mail clients or other anti-spam tools identify potential spam message for further action.

We love this product. It is robust and has excellent features. There's a free version called IMail Express, which supports a single domain and five user accounts but omits lists and a few other features. There are also two charged-for versions: IMail Small Business, which costs \$695 (maximum five domains, 10 lists but unlimited users), and IMail Professional, which costs about \$1,500.

We're just starting to test IMail's anti-spam features so we'll let you know what impact they make in the future.

In the meantime, send a message to gearhead@gibbs.com.



Cool Tools

**Quick takes
on high-tech toys**
By Keith Shaw

comes with a docking station, so users can remove the media reader from the docking station and attach it to a notebook computer with a smaller cable. The ImageMate reader works with PCs with Windows 98SE or higher, and Mac OS 9.1 or higher. It will be available in stores later this month, SanDisk says.

An affordable ultraportable?

Having a lighter notebook is always a goal of ours, but we often don't like sacrificing features such as an optical drive to get the lighter notebook. Also, higher prices for the ultraportables sometimes turn us away.

So we were intrigued by the announcement last week by Sharp Systems of America, which launched its Actius AV18P ultraportable notebook for a price starting at \$1,450.

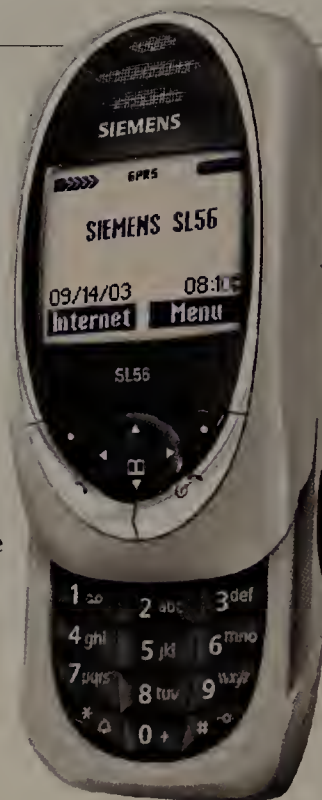
The notebook includes integrated wireless LAN (802.11b) connectivity, and a built-in combination DVD/CD-RW drive. The notebook measures 1-inch thick and weighs 3.9 pounds. Other features include a low-voltage mobile AMD Athlon XP-M processor 1800+, 256M bytes of memory (expandable to 768M bytes), Microsoft Windows XP Professional, and a 40G-byte hard drive.

The notebook has a battery with up to 2.9 hours of life (5.8 hours with an optional add-in battery), and comes with a 12.1-inch XGA (1,024-by-768 pixel resolution) TFT LCD screen. The notebooks are available directly from Sharp (www.sharp.smartermall.com).

Siemens phone has hidden keypad

If you're sick of a cell phone that has its keys showing all the time, and don't really get into the clamshell design phone, then Siemens has a phone for you.

The company last week launched its SL56 phone, with a



**The SL56 keypad slides out
when you want to make a call.**

sliding design that hides the keypad underneath the display. The keypad can slide out to make a call. The high-end phone includes a titanium-colored case, a translucent keypad and a color display (4,096 colors). Other features include polyphonic ring tones, voice-activated dialing and wireless Internet access. The phone is available through Cingular Wireless (\$250 with two-year agreement). AT&T Wireless will sell the phone for \$250 later this month, Siemens says.

New disk defragmenter

Executive Software last week launched Version 8.0 of its Diskeeper defragmenter software. The company says the software now boasts a new user interface, faster defragmentation engines, terabyte drive defragmentation and an Administrator Edition that includes full reporting and alerting features. Executive also says it also has a version designed for the Windows 2003 Server operating system.

The software includes a new "performance index," which shows how much performance is being lost on your system because of fragmentation, and how much performance will be gained with a defrag. Also included is support for Active Directory and Logical Groups, with three views of looking at devices on a network: Active Directory view, Logical Group view and a Domain/Machines view.

Trial versions are available at www.executive.com. Pricing depends on the version needed and number of licenses being purchased, but the electronic download version of the Professional Edition costs \$45.

Shaw, who is senior reviews editor, can be reached at kshaw@nw.com.

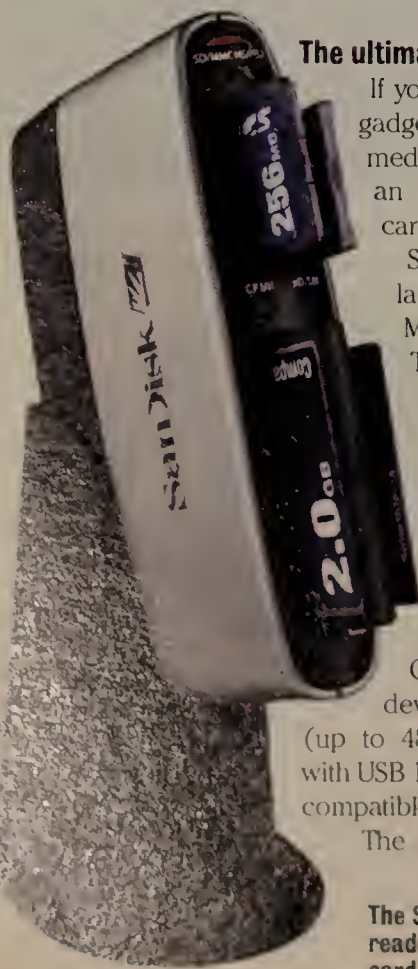
The ultimate media card reader

If you have a lot of different gadgets that all use different media cards, then you need an "all-in-one" type media card reader.

SanDisk last week launched a USB 2.0 ImageMate 8-in-1 card reader. The \$39.99 device has four slots that can accept eight storage card formats — Compact Flash (Type I and II), SmartMedia, Secure Digital, MultiMedia Card, Memory Stick, Memory Stick PRO and the xD-Picture Card. With USB 2.0, the device allows faster transfers (up to 480M bit/sec) compared with USB 1.1. The device, however, is compatible with USB 1.1 ports.

The media card reader also

The SanDisk ImageMate 8-in-1 reader supports eight media card formats.



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EDITORIAL

John Dix

Sifting through the FCC order

The FCC's recently issued order on local telecom competition is a reasonable step forward but might be undermined by the litigation it invariably will inspire.

Cementing positions the FCC first aired in February, the 576-page order changes rules set forth in the Telecommunications Act of 1996 to spur telecom competition. Industry developments, technology advances and legal challenges mandated the changes, the FCC says.

But nothing as complex as trying to direct the telecom market comes easy, as evidenced by the internal bickering of FCC commissioners. Footnotes are used to criticize Chairman Michael Powell, who dissented with the majority on many points of the order. One note, for example, calls Powell "simply wrong," and another says, "We are at a loss to understand his complaint."

Most of the controversy swirls around Section 251 of the telecom act, which requires incumbent local exchange carriers (ILEC) to make elements of their networks available at cost to competitors. ILECs want the requirements to be lifted, while new entrants argue they need access to some of these ILEC facilities to compete.

As was evident in February, the ILECs won a few concessions in this order — they no longer have to offer access to new fiber loops or packet-switched facilities — but the FCC refused to remove the bulk of the sharing requirements.

In fact, the FCC added what many ILECs view as an onerous new twist: a role for the states to play in determining who has to share what and where. This is in answer to a Washington, D.C., circuit court ruling that criticized the FCC's original nationwide policy and called for a "more nuanced" approach to competition.

Under the new rules, the commission will maintain a list of the major resources all ILECs have to make available to competitors while states will consider a subset of elements that are based on local market needs.

Although the FCC says the approach "offers the certainty and stability necessary to enable parties to make investment decisions," it could create a patchwork quilt of regulations that stymies industry advances and leads to protracted legal action. Time will tell.

While the FCC ruling is well reasoned, it is trying to address a wicked problem where potential solutions can cause more trouble than they solve. The only way to deal with the problem might be to get out of the way and let the market decide.

— John Dix
Editor in chief
jdix@nw.com



USER VIEW

Chuck Yoke

Converging with Six Sigma

Sometime during the next eight to 12 weeks I should receive my Green Belt.

After additional practice and experience, I might try for the Black Belt, and ultimately, I might become a Master.

This has nothing to do with the martial arts; I'm talking about Six Sigma certification. Initially developed by Motorola and later championed by General Electric, Six Sigma is a methodology to eliminate defects, improve efficiency, reduce costs, increase profits and enhance customer satisfaction. By following a repetitive cycle of "Define, Measure, Analyze, Improve and Control," Six Sigma focuses on creating the highest quality at the lowest cost. (For more information, visit the Six Sigma Forum Web site at www.sixsigmaforum.com.)

Does my immersion into Six Sigma mean that I am abandoning networks and moving into the manufacturing arena? On the contrary, I expect Six Sigma to provide me with the skills I need to attack two evolving areas of network opportunity: converged networks and reduced operational costs.

Network convergence will create a challenge in product development and process management. While data network managers tout the availability of their networks, most data networks do not provide the same level of service as their voice counterparts. A data network that maintains 99% availability is considered quite good. However, on a 24-hour by 365-day basis, this equates to 88 hours of downtime, which is unacceptable in a voice network. In the voice world, 99.999% availability — the Holy Grail of data networking — is considered the norm.

To be successful in the corporate world, converged networks will need to meet the higher service

requirements while still maintaining their other significant business advantage: lower costs. A converged network can generate substantial savings in consolidated physical plants that reduce cabling costs, combined voice and data infrastructure equipment that reduce the need for separate voice equipment, and integrated network management systems that reduce the need for separate voice management.

While the potential exists to offset some of the costs of additional capital with these savings, at the end of the day a converged network needs to provide 99.999% availability and low latency with reduced infrastructure and operational costs. To accomplish this, network architects and managers will need to take a step back from technology and look at the network from a holistic perspective that includes not only protocols, switches and routers, but also service requirements, development costs and operational costs. To keep development and operational costs to a minimum, areas of potential

savings such as process efficiencies or operational synergies will need to be identified. To ensure ongoing customer satisfaction, post-implementation service levels will need to be constantly measured, analyzed, improved and controlled.

Programs such as Six Sigma can provide network professionals with the disciplines, skills and tools to ensure their converged networks bring the highest level of quality with the lowest operational costs. The future of converged networking lies not in technology, but in the overall service and value it brings to the user.

Yoke is a business solutions engineer for a corporate network in Denver. He can be reached at ckyoke@yahoo.com.

In the voice world, 99.999% availability — the Holy Grail of data networking — is considered the norm.

Mike Keefe 2003



"Read the scathing remarks as you protest in silent — and sometimes not-so-silent — rage: 'But most of us didn't have a damn thing to do with any of that!'"

Not all rotten apples

So according to Mark Gibbs, MCI is "rotten to the core" (www.nwfusion.com, DocFinder: 7522) Please, Mr. Gibbs, take a job at this "rotten" company and then read about yourself in the papers every day. Look around at the honesty and integrity of your friends and associates and still label them rotten. Share our bitterness at being tarred by the actions of a few executives who just couldn't stand to keep honest books. Read the scathing remarks as you protest in silent — and sometimes not-so-silent — rage: 'But most of us didn't have a damn thing to do with any of that!'

Sorry to sound bitter, but it's not easy doing a job with honesty and integrity, then read that my co-workers and I apparently still make this company "rotten to the core."

Michael Tierney
Install engineer, IP/VPN Activations
MCI
Hilliard, Ohio

Keeping the faith

As a relative newcomer to the telecom world, I approach my job with an excited naivete and thankfulness in these tough economic times. But you don't have to be a rocket scientist to see through AT&T's tactics and attempts to derail MCI's direction.

Michael Cappellas has addressed the issues he inherited at MCI with straightforwardness and vigor. MCI's corporate mantra, "Do the right thing because it's the right thing to do," has been communicated within MCI — even to the lowest levels of new-hire such as myself — and I believe in Cappellas and our company.

Calling an entire corporation "rotten to the core" is unfair. As a journalist, Gibbs should know that a few bad apples don't spoil the whole bunch. I can't wait until MCI emerges from its restructuring. After all the mudslinging and whining is over, maybe everyone will realize that there are good things that come from competition. I look forward to beating the pants off AT&T and all the other telephone company competitors by being the best.

Andi Bogan
Account executive
MCI SB Direct
Greensboro, N.C.

Free market value

While I agree that MCI is a bad apple, I disagree with Mark Gibbs' solution: "I'd suggest that we break them up, sell them off, anything but allow them to be another rotten apple in the big-business barrel."

By "we," of course he means the government, which is the only body capable of forcibly divesting companies. But why let the same government, whose own Secur-

ities and Exchange Commission guidelines and accounting rules were snookered for so long, decide how best to deal with and punish such a massive fraud? They can go after the executives who knowingly committed fraud and those who abetted them, but that should be enough. The free market will continue to do the rest, as more information comes out and investors move their money elsewhere. At some point, MCI will find a leader who sells or fires the divisions that profited from fraud. Let the free market continue to work, and leave the government to do the prosecution.

John Keller
CTO
Metro Power Systems
Atlanta

View from the trenches

Mark Gibbs is spot-on about everything in his MCI rant, with one exception: If he's not terrified of losing his job right now, the market for network pundits must be healthier than the market for techies in telecom, datacom, software product development or IT.

Early last year, I rode a product development start-up into the ground. It was a great little company with an existing product in a marketplace that people are just starting to talk about again. If we could have garnered as little as another \$2 million, we'd be in the driver's seat in that market now. Because of the bubble burst, it is lost and gone forever; the remnants of the technol-

ogy were sold to a perpetual broadband industry also-ran that neither understood nor used what they were buying.

So not being independently wealthy, I found another job with yet-another start-up. Two weeks after I started there, they hired a "professional" CEO who fired the founder and immediately started milking the company, failed to net a second round of financing for eight months and laid off 25% of the staff after finally securing a disastrous B round.

Yup, the layoff got me too, five sad days after I'd accepted an offer on my house. I went home, sold the house, moved my belongings into storage and my wife and daughter into my parents' basement, and started looking for work. This is not a good way to live at 41 years old, 19 years into what was supposed to be a rewarding career. It took seven weeks of effort to get an invitation to an interview, which eventually led to an offer, which I took. My co-workers who were also laid off the first of November didn't find employment by the New Year, and two still haven't. These were all good people with years of experience on their résumés and good professional skills.

I consider myself a fairly strict moralist. I consider being a good citizen and neighbor a personal and professional obligation to all humankind. At this terrible time, though, my first responsibility is to my family, and if blowing the whistle on my bosses' bending some obscure rules for a little extra profit might cost my family more

months of turmoil and disruption, forget it. If someone's getting killed, yes, but not over something as Byzantine (and mired in the bowels of bad government) as long-distance call routing regulations.

Wes Peters
San Diego

Suspect motives

I read Mark Gibbs' columns religiously and generally enjoy them, but I disagree with him on this one. The total number of people at MCI who have been accused of a crime is less than 50 out of the entire company. While many top executives were involved in the fraud, it doesn't mean that entire company is a criminal activity, and the idea of shutting the company down for this is not logical. The only parties advocating this are the other carriers, and their motives are rather suspect. Eliminating a major competitor will only harm the end users and the public at large.

Furthermore, the call routing cited by AT&T might not be illegal (unless it carried classified traffic), and no one has claimed it is. AT&T has claimed that this practice constitutes some kind of fraud but has not made much of a case. I suspect this issue will go away, and wouldn't be a bit surprised to find that all the carriers (including AT&T) do the same thing.

A few rotten apples don't mean a company is rotten to the core, and what Gibbs recommends punishes the good apples, not the bad ones. Bad idea all around.

Jeff Held
Washington, D.C.

No ethics in business

There is no such thing as ethics (or morals) in business. There's plenty of lip service, plenty of "guidelines" and "initiatives" for employees, but the bigger the company and the higher you go, the deeper the rot.

I've worked for several companies, and the federal government, over the past 40 years and have found this to be true in every case. Small companies cheat on their taxes, software licenses, federal, state and local regulations. Large companies just have more ways of cheating. Business-friendly Republican administrations write a blank check for this sort of behavior.

Honest employees are forced to go along with the flow to remain employed. In the inevitable recession and poor job market that accompanies a Republican president, they cannot afford to lose their jobs.

In a more perfect world, MCI would automatically be barred from all federal contracts (as would any company caught "south" of the law). The executives would be responsible for repaying all the losses and serve jail sentences.

David Easter
Fallston, Md.



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CSI: Lost e-mails

**Forensic experts
sift through
electronic data
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bits of evidence.**

Better save than sorry

Given the prominent role of technology in business today, it's no surprise that electronic data often factors into lawsuits and compliance issues. E-mail seems to play a key role, as demonstrated by several recent events:

- In December, the Securities and Exchange Commission fined five Wall Street titans a total of \$8.25 million for failing to save all employee e-mail for three years.
- In June, the Massachusetts Secretary of State fined SG Cowen Securities \$100,000 when the New York company's Boston office was unable to produce e-mail that investigators requested.
- Incriminating e-mails — and employees' efforts to delete them — contributed to the Enron and WorldCom scandals.

■ BY STEVE ULFELDER

Your CIO calls. He just had a visit from the CEO, who just met with the company lawyer. Maybe an ex-employee is suspected of stealing trade secrets. Maybe a sexual-harassment suit has just been filed against the company. Maybe there's a Securities and Exchange Commission or even an FBI investigation.

In any case, what the CIO wants is e-mail. Not just any old e-mail but e-mail going back five years from two-dozen end users, some of whom no longer work at the company.

And you just can't dump terabytes of raw data on the CIO's desk. You need to sort the e-mails by cross-referencing them against a list of 25 keywords. And you have to weed out all the cc's and other forms of duplication.

Oh, and you need to produce hard copies of the e-mails in 14 days, no ifs, ands or buts.

If this scenario occurred at your company, would you be prepared to handle it with ease or would you be headed for a serious meltdown?

In today's world of rampant litigation and regulation, even if you're not an Enron or a WorldCom, even if your company is squeaky clean, it's wise to assume that sooner or later, you will be compelled to produce e-mail records.

In fact, Renew Data, an Austin, Texas, computer forensics company, met with more than 100 of the Fortune 500 this year and found that each company is facing an average of 125 non-frivolous lawsuits at any given time. In any sizeable corporation, "A lawsuit is not an event, it's a process," says Renew Data CEO Bob Gomes.

In addition to lawsuits, regulations can result in requests for e-mails and other documents. Financial-services firms are watched closely by the SEC. Companies involved with the healthcare industry, even tangentially, must comply with the massive Health Insurance Portability and Accountability Act. Inquiries, requests for information and penalties can come from any number of state, industry and federal bodies.

The bottom line is if you haven't recently overhauled your policies and procedures for saving e-mail, now's the time.

Lawyering up

For the past decade, IT managers have worked hard to strengthen lines of communication with the business side of the company. Experts say it's now time for IT to extend that effort to the company's legal department.

"IT should not and cannot dictate the policy" on saving data, says Ray Paquet, an analyst at Gartner. "This is fundamentally a legal issue, especially in publicly traded or highly regulated companies."

When meeting with your employer's general counsel, he says, IT should "make it clear that you'll do whatever he needs done — but that nothing in life is free. Increased data

retention costs money."

"Whether companies save too little information or too much, we find that they're often surprised by their data retention," says Simon Platt, leader of the computer forensics practice at Deloitte & Touche in New York. According to Platt, it is IT's job to eliminate this surprise factor. "There's got to be communication between the CIO and general counsel. IT can help [the legal department] understand how much e-mail they're retaining, how much of it can be realistically accessed and how expensive that will be. General counsel can help decide

Retention is key

When it comes to policy, IT groups primarily will implement policies created by lawyers. But you can begin following these procedures to protect your company — and yourself, immediately:

- **Don't delete employees' e-mail accounts the minute they leave the company. Disable the accounts instead. When workers leave a company, it often takes some time before their ex-employer decides to investigate their e-mail. For example, it's common for a salesman to move to a competitor. But if a suspicious number of his customers follow him a few weeks or months later, his former company may want to see what he was up to before he left.**

- **Don't go fishing. A "fishing expedition" is what Michelle Lang, an attorney with Kroll Ontrack Data Recovery, calls it when "high-level executives think something has occurred [on a worker's or former worker's computer], but they're not sure what," she says. "They go to IT and say, 'Why don't you boot up that PC and run a few searches, just to see what you can figure out?'" Lang and other experts say you should think carefully before obeying such a request, no matter who makes it, for several reasons. For starters, you might jeopardize any case your company has. Simply booting up a PC can alter enough metadata to torpedo a court case. Moreover, you might be ordered to serve as a witness during a criminal or civil trial. One recommended approach is to archive former employees' e-mail. "If you convert Outlook to a PST file and burn it to a CD, you've got it for years," says Mike Finnie, a forensic specialist at Computer Forensics.**

- **When e-mail administrators move on to a new job, they often change passwords — a sound security policy. But keep a record of the old administrator's passwords to make it easier to access old e-mail files.**

- **Similarly, if you reconfigure your e-mail system, keep a record of the old system-specific nomenclature. For example, if you go from Microsoft Outlook Exchange Server to Lotus Notes, Finnie says, it's a good idea to hang on to Exchange's Site and Organization names, as well as the type of software used to create backups.**

how much [e-mail] the company should be retaining, then set and enforce policies."

Your decision on how and how long to save e-mail should merely be part of an overall data-retention policy. IT, legal counsel and top business executives should formulate this policy, Paquet says, after considering industry regulations and legal precedent. For example, the SEC dictates that brokerages must be able to produce three years' worth of records "immediately" upon request.

So how long should you hang on to old e-mail? There's no concrete answer, but the ever-declining cost of storage is driving many companies to save e-mail for long time periods, even if regulators don't force them to.

Solvay Pharmaceuticals, an Atlanta subsidiary of Solvay S.A. in Brussels, Belgium, recently needed to quickly find a year's worth of e-mail messages from certain employees regarding certain topics (Solvay is reluctant to discuss the specifics of the case). The problem was complicated because Solvay uses a third party to manage its Microsoft Exchange servers.

After evaluating various retrieval options, the company turned to Renew Data. Bruce McMillan, Solvay's manager of emerging technologies, says the vendor "was able to search through the e-mail month-by-month, capture it, remove duplications [such as cc's] and put it in any format we needed" more quickly than Solvay's internal IT staffers could have.

After that experience, Solvay changed its data-retention procedures, McMillan says. "We used to recycle tapes after a certain period of time. Not anymore — we're saving everything."

On the witness stand

Many businesses turn to e-mail-recovery services for their expertise. "Computer evidence is so fragile — it can be lost or corrupted so easily," says W. Reid Wittliff, an attorney at Graves, Dougherty, Hearon & Moody in Austin, Texas. The firm used Renew Data in a trade-secret case. Although the case was settled before it went to court, "We needed someone who could find the evidence, capture and preserve it so it could be effectively used in court, and defend against attacks" by opposing attorneys, Wittliff says.

The latter point is important, and often overlooked. IT employees on the witness stand might be turned inside out by a savvy lawyer, who will make every effort to imply that they might have tampered with the evidence out of loyalty to their employer.

"You need someone who can testify and be neutral and professional about what they've done — and can explain it so a judge or jury can understand," says Wittliff, who was a computer-crimes prosecutor before joining Graves, Dougherty. (Attorneys similarly can attack firms like Renew Data on the basis of who's paying their bills, but their third-party status tends to make them solid witnesses, analysts say.)

While many consider e-mail retention as a defensive need, it is just as likely to help businesses prove wrongdoing by others, such as when former employees are shown to have stolen proprietary data. Michelle Lang, an attorney with forensics firm Kroll Ontrack Data Recovery, recalls a case in which a secretary claimed she'd been sexually harassed by her boss, and produced filthy e-mail messages that "proved" her case. Using forensic techniques, "We found she was using his account and sent all the e-mails herself," Lang says.

Searching for byte marks

So how does a search for e-mail work? The process varies, but typically a company's outside counsel receives a subpoena or discovery order from some source — a plaintiff's attorney, for example, or a regulatory agency such as the SEC. Outside counsel meets with the company's head of litigation. Eventually, general

counsel meets with the CIO and explains what e-mail must be produced.

The parameters vary by case. A typical large-scale corporate civil suit might require all e-mail (and user files) from the past five years for 50 employees responsive to 30 keywords.

Then the CIO calls the IT department and relays the request — and asks how long it'll take to pull together the information.

Which is when IT has a nervous breakdown. "It's a dirty little secret that it's hard to get information off back-up tapes," Renew Data's Gomes says. Even if a corporation never recycles tapes and labels them scrupulously, it might have 10,000 tapes to go through, with untold terabytes of data. To pull the needed information, IT must recreate the native environment as it was when the backup occurred — the proper version of the backup software, operating systems, applications, with appropriate patches, passwords, and so on. In a typical business, this can be nearly impossible.

Many businesses, facing time pressure and the difficulty of the task, call Renew Data or competitors such as Data Recovery Group and 911 Forensic Data. Such services use proprietary techniques to recover e-mail without restoring the native environment. Their trick is that they've backward-engineered popular back-up software such as from Legato Systems, and are familiar with all the widely used data structures.

Where the data extraction is performed is determined partly by the circumstances of the case. Renew Data recently worked on a case for "one of the largest banks in the U.S.," Gomes says (declining to be more specific). The bank didn't want its back-up tapes to leave its facilities. This is typical, and sensible as well — data extraction typically requires only a tape drive, so it's easy to do on customer premises.

There are two critical factors in the extraction that might be unfamiliar to IT professionals. First, when working with hard drives as opposed to back-up tapes (a common occurrence because many users save some of their e-mail to their own PC), specialists don't merely copy the drive — they create a byte-for-byte forensic image of it.

It's also important to start a chain of custody so that any evidence gathered will stand up in court. "If we produce something, we need to be able to say exactly where it came from under very aggressive cross-examination," says Kevin Bluml, a forensics expert at Kroll Ontrack. "Creating a chain of custody means tracking every single place a piece of media has been, who's touched it, and so on." This demand for precision is one reason experts discourage "fishing expeditions." Generally, the actual data retrieval is performed at the vendor company's site.

Protect yourself

Today, it's critical that companies form, implement and enforce a data retention policy with e-mail as its centerpiece. "E-mail messages are critical business records," Massachusetts Secretary of State William Galvin recently told *The Boston Globe* when his agency fined SG Cowen. "The fact that [e-mail messages] are a little more casual than traditional business records makes them no less significant."

Ulfelder is a freelance writer in Southborough, Mass. Contact him at sulfelder@charter.net



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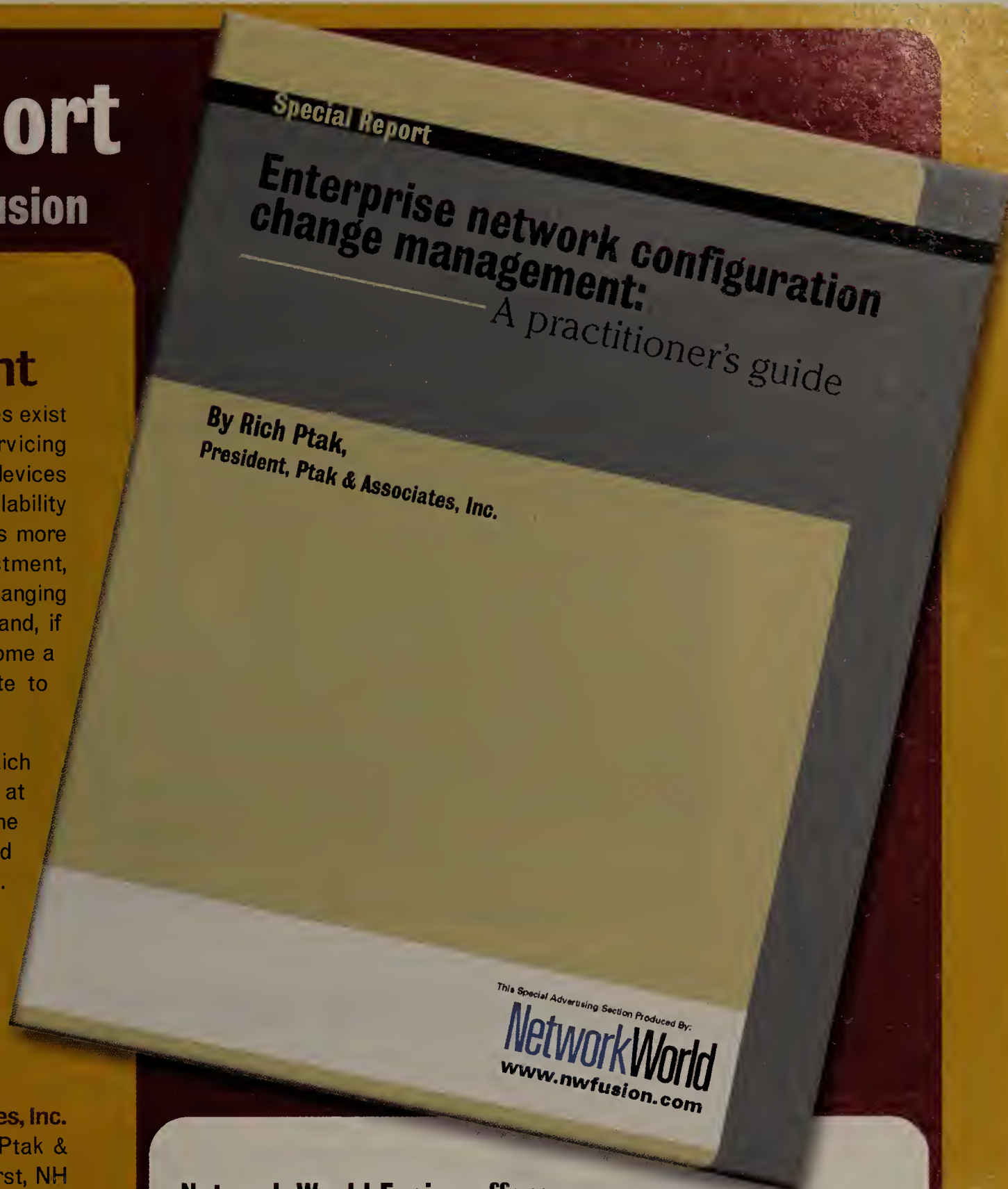
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Review

EXCHANGE SERVER
2003, OUTLOOK 2003

Favorable returns on Exchange

■ BY TRAVIS BERKLEY, NETWORK WORLD GLOBAL TEST ALLIANCE

The newest upgrade to Exchange 2003, based on our testing of the Release to Manufacturing version, is a welcome one, offering performance, security and anti-spam features that many users have longed for. The new Exchange Server 2003 includes an impressive list of features and enhancements and while this version might not boast enough new features to lure non-Exchange users to switch, the veteran Exchange shop will truly enjoy the enhancements. We also tested the latest Outlook 2003 client, which features a new look and better spam filtering.

Exchange requires Microsoft Windows Server 2000 Service Pack 3 or Windows Server 2003 software. Win Server 2003 provides some additional functionality to Exchange, such as support for an eight-node cluster. Also, the Volume Shadow Copy services, new in Win Server 2003, can provide database replication for the Exchange message stores. This copy of the database can be used for immediate failover, or can greatly widen your back-up window (if your back-up software also supports Shadow Copy).

Win Server 2003 is different than previous versions, with most of the services disabled by default. To ensure a successful Exchange 2003 installation, new deployment tools are included to help users configure Windows Server and Active Directory correctly, and then deploy Exchange 2003. The tools function like checklists to ensure that you've followed the necessary steps. For example, the deployment tools not only explain to

first configure Active Directory, but also show how to check the configuration. It will not let you proceed until you've checked off each task in the list. Installing or upgrading, all at once or in pieces, the deployment manager can explain how to proceed.

A welcomed new feature in Exchange 2003 is the ability to combat unwanted e-mail and spam (Microsoft calls it 'junk e-mail'). Exchange now has some additional filtering available at the Simple Mail Transfer Protocol gateway, the entry point where the outside world delivers e-mail to you. Messages can be blocked based on the user or domain where the mail claims to be from, or based on who the message is intended for. Delivery connection attempts can be denied based on the origination address. Several anti-spam features are also included on the new Outlook client.

Another tool that many will appreciate is the Mailbox Recovery Center. In the past, if the Active Directory account became disassociated from the user's mailbox (through corruption, deletion and the like), the only solution was to create a new, empty mailbox for that user. The Mailbox Recovery Center now gives administrators the ability to discover "orphaned" mailboxes and re-link them with Active Directory accounts. It also will warn of conflicts, for example if one mailbox is assigned to two users.

Distribution lists also received some attention in this release. First, the caching process was redesigned so membership and other queries against a distribution list are completed much faster. We didn't benchmark against an older Exchange system, but Microsoft says that on average, 60% fewer Active Directory queries are made in Exchange 2003. Instead of making a new query to Active Directory, the results are more frequently available in cache. Second, a new type of distribution list was created, the Query-Based Distribution Group. A query can be used to select users or other groups based on many of the fields in the Active Directory.

For example, you now can find everyone in sales or everyone with the title of "manager." This query is executed each time it is invoked, so it is always current.

Another performance enhancement is better virtual memory usage. Exchange now makes variable memory requests, based on the size of the system, instead of using "hard coded" values. Older versions would allocate many small blocks of memory to perform a task. Exchange 2003 now optimizes these requests into fewer, larger requests in order to not waste portions of memory. If Exchange discovers that it is not configured optimally, it sends a note to the Event Viewer to provide an idea of what changes to make.

To dig into the documentation, use a machine with a network connection. While the documentation is pretty complete, it is all online at the Microsoft Technical Library, or technet. This lets Microsoft update documentation as needed, but it requires users go online to read it.

It's all about the client

While technically part of the Microsoft Office 2003 Suite, which is scheduled to launch on Oct. 21, Outlook 2003 is the full-featured client for Exchange 2003. The software has received a bit of a facelift with a different look and feel; however, it is still familiar enough for the veteran user to find their way around. Some of the changes are simple, yet useful. For example, message flags now can be done in six colors. When you order your items, they can be separated into groups, each of which can be collapsed individually.

Probably the most welcomed feature is the junk filters. In addition to what's offered at the SMTP gateway, each user can control how junk e-mail is handled. The junk-mail filter operates in three modes: Low, which removes only the most obvious offenders; High, which catches most of the junk, but might flag a legitimate message occasionally; and Safe List only, which flags all messages

from everyone that the user hasn't pre-approved. You also can delete these messages automatically instead of moving them to the junk folder. We wouldn't recommend deleting messages for the more aggressive filter settings.

The user can flag messages as junk as they read them. An address can be added to a safe sender list that tells the filter to accept all messages from that person. Users also can send names to a Blocked list, which blocks every e-mail from that address.

Another interesting enhancement stems from the use of embedded content in messages. Sometimes users receive a message that has a picture or a banner embedded in it. This content might be hosted on an external Web site. With increasing frequency, spammers are using this technique to find which e-mail addresses are real. When the client connects and requests the content, the Web server can request the e-mail address of the requestor. Bang! You've just been harvested. Outlook can be set to not automatically download this content. It can be set to not do it at all, to only do it for sites in the Trusted Zone, or to warn the user first. This setting is one of the security options, and can be changed.

Microsoft also has taken strides in compressing the Messaging API datastream when the Outlook 2003 client is connected to the Exchange server. While an older Outlook client can be used to connect to Exchange 2003, the datastream will not be compressed. Exchange 2003 has been optimized with buffer packing to make the most out of each transmission back to the Outlook 2003 client. After the data is compressed, it is assembled into larger packets that are arranged in a package that minimizes the needed number of transfers.

Remote control

To access your Exchange mailbox from anywhere on the Internet, you would have to use Outlook Web Access (OWA) or fire up the trusty VPN. Outlook 2003

Net Results

Exchange 2003

OVERALL RATING
4.15

Company: Microsoft, www.microsoft.com **Cost:** \$4,000 for Enterprise Edition, plus \$67 per user or device CAL. **Pros:** Checklists for installation; improvements to Web interface; many performance enhancements. **Cons:** Dedicated server required for HTTP/RPC tunneling.

The breakdown

Performance 25%	4
Ease of use 25%	5
Installation 20%	4
Administration 20%	4
Documentation 10%	3
TOTAL SCORE	4.15

■ **Scoring Key:** 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently subpar

can be used to connect to Exchange 2003 using Secure HTTP, thereby gaining an encrypted connection into the Exchange system without opening new ports on your corporate firewall. Exchange 2003 does this by tunneling the normal Remote Procedure Call (RPC) traffic inside of HTTP packets.

Additional setup is required to gain this functionality. First, the Exchange 2003 servers must be running Win 2003. Next, you will need to dedicate a server to be a front-end RPC proxy, and position it near the edges of your corporate network, perhaps

in the firewall's demilitarized zone. The Exchange servers also need to be configured to accept RPC proxy connections. Finally, you need to create a separate profile within Outlook 2003 to use RPC over HTTP (Again, cached mode must be used.) If users are frequently in and out of the office, they can use this profile in both situations, provided they can connect to the RPC proxy server when inside the corporate firewall.

Even though that is a lot of work, it's also generally less expensive than buying a complete VPN solution that is only used to pro-

tect your e-mail connections. If you're using a VPN for other remote connectivity, you might not need this feature. But if you've been shutting NetBIOS and RPC off at the border to protect yourself from intrusions, this might be a way to once again give your remote users access to a full client.

On the move

The new look and feel of Outlook Web Access 2003 is very similar to the full client. Further, Microsoft extended some of Outlook's security features. Secure Multipurpose Internet Mail Extensions message encryption is available in OWA, as well as the "external content blocking" features. There is also a timeout on the session cookie that keeps track of the OWA connection. The administrator can decide if the default 15 minutes is long enough.

If users connect to OWA with a browser earlier than Internet Explorer 5.01, they are given the choice of connecting in basic mode, which removes some of the functionality in favor of better performance. For additional performance, GZip compression can be enabled for clients using Internet Explorer 6.0.

Finally, Microsoft has wrapped Mobile Information Server, which had been sold separately, into OWA. The new service, dubbed Outlook Mobile Access, is designed for thinner clients, such as cell phones and Windows Powered Mobile

Devices. While we did not test these features, Outlook Mobile Access extends the Exchange mailbox to these handheld devices through synchronization or micro-browser interfaces.

Conclusion

This is a rather feature-packed upgrade. While there might not be enough to motivate non-Exchange folks to switch, existing Exchange shops will certainly enjoy this upgrade. Putting anti-spam tools in the hands of your users might make the investment worthwhile, and performance enhancements are always welcome.

Berkley is the manager of LAN Support Services with the University of Kansas. He can be reached at berkley@ku.edu.

How we did it

We installed our Exchange 2003 Server on an HP Compaq ProLiant DL360 G3 server, with twin 2.4-GHz Intel Xeon processors, 1G byte of RAM and a 36G-byte RAID5 array, running Windows Server 2003. A second, identically configured DL360 was used as the proxy server for the HTTP/RPC tunneling testing. We created a new Active Directory tree to hold our new Exchange 2003 Server.

Outlook 2003 was installed on several Windows XP Professional workstations of various makes and models. We mainly used Internet Explorer 6.0, but also tried older versions to test the basic modes of OWA.

We put Exchange 2003 through its paces by performing day-to-day groupware functions, such as appointment and task management, as well as sending a plethora of e-mail. We also had fun seeing what would trip the "junk e-mail" filters.

Global Test Alliance

Berkley is a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.

Product Peek

A quick look at things for your network

■ BY PAUL FERRILL

Reading server log files ranks up there with visiting the dentist and preparing your taxes by hand. But unless you read those log files, you might miss something really important — such as attempted security breaches or a hard drive starting to fail. On the other hand, you could use the tool SyslogAnalyzer from eIQnetworks to do the sifting for you.

SyslogAnalyzer examines system log files on Windows NT, 2000, XP and Windows 2003, as well as various types of Unix platforms. NT platforms must have Service Pack 6a and the Windows Management Interface (WMI) installed. The basic license for the software lets you monitor up to 15 unique servers. For Windows systems SyslogAnalyzer can monitor the three log files — system, security and application — depending on how you configure it. Each of the three log files keeps track of six levels of events, including success, error, warning, informational and audit success/audit failure.

While it does not audit logon events

SyslogAnalyzer 2.0

by default. This feature must be enabled by the system administrator along with other auditable events, such as access to specific files. Microsoft knowledge base article No. 300549 (see www.nwfusion.com, DocFinder: 7523) describes in detail how to enable and apply security auditing in Win 2000.

The SyslogAnalyzer console uses a Web browser interface, making it accessible from virtually anywhere. Critical events show up in the console as red flashing stop signs to get your attention. Graphical reports help users quickly visualize alert categories and see the highest-volume offenders. Report format options include Microsoft Excel or Word, HTML, PDF and plain text.

Customizing reports is a snap using the Web-based report tool. New reports can be created from the basic, provided templates, or you can start from scratch. Once a report has been defined, custom filtering also can be applied to present only the information of interest. If no filters are selected, the system defaults to the last two days of information.

Before monitoring other systems you

must add them using the Hosts option from the main administration page. Adding a Windows-based host only requires that you know the administrator password for the target system. On Unix machines you must perform several additional steps, including editing a system configuration file. The quick help guide provides most of the steps, but falls a little short in leading you through all the necessary details.

One of the most useful capabilities of SyslogAnalyzer is the alerting feature. Alerts let you specify which log entries or events should receive immediate attention. When one of these events is detected, an alert is sent using e-mail to a pre-defined address. You could just as easily send a message to a cell phone with the same e-mail interface. There's also an option to generate a popup message and audible alarm on the system console.

To use the alert feature, the details must be configured for your Simple Mail Transfer Protocol server, including logon information if it's required. You might want to change other configuration details such as the frequency of retrieval for log files,

SyslogAnalyzer 2.0

eIQnetworks
Wayland, MA 01778
www.eiqnetworks.com

Cost: \$495 for 10 hosts.

Pros: Easy-to-use Web-based interface puts all server log information at your disposal. The flashing stop sign alert helps to quickly identify trouble.

Cons: Documentation is missing some information and not written as clearly as it could be.

and how often to delete events from the database (default is everything older than two days).

This product is definitely not for the small office with only a few servers to monitor. For larger installations it could be a useful addition to the toolbox of a system administrator responsible for several servers, especially if they are spread out geographically.

Ferrill is a freelance writer in Lancaster, Calif. He's been using and writing about networks for more than 15 years. He can be reached at Paul.Ferrill@verizon.net.

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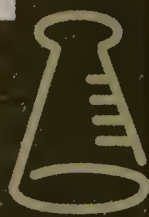


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How emerging technologies are transforming key vertical industries.



Real-time survival

Chemical manufacturers tap up-to-the-minute performance data to improve processes in a bid to stay competitive.

■ BY LAUREN GIBBONS PAUL

Like every other company in its industry, chemical giant Atofina needs to wring every last dollar and whiff of inefficiency out of its operations. A few years ago, the \$19.3 billion company, previously known as Elf Atochem, began to implement a system that collected data from its manufacturing plants for analysis by plant-floor personnel.

Today, that system has evolved into a real-time performance management (RTPM) platform that lets business managers view valve pressures, temperatures, flows and other data generated from the petrochemical-manufacture process.

By broadening access to this data beyond the plant floor, decision-makers can quickly spot inefficiencies and fix them. Such enhancements are critical in the challenged chemical industry, which was struggling even before the recession hit.

"You can learn a whole lot by analyzing data, especially when you're looking for ways to make improvements," says Dwight Stoffel, principal plant electrical instrumentation engineer for Atofina's plant in Calvert City, Ky. Stoffel was one of the first people at Atofina to see the potential to propagate real-time performance data throughout the company.

RTPM systems collect timely data from equipment and different parts of a facility and bring it together in one database. "[RTPM] systems collect, aggregate and put context around the data to enable better decision-making," says Leif Eriksen, principal at consulting firm Industry Insights.

Atofina began its RTPM odyssey in 1997 by installing the Plant Intelligence application from OSI Software at its Calvert City plant. This initial investment cost \$100,000 for hardware, software and installation. The experiment proved fruitful. In 2001, the first full year that the plant used real-time Plant Intelligence data, "we cut our maintenance costs just for parts by \$363,000," Stoffel says.

By last year, Stoffel estimated Plant Intelligence garnered about \$1.8 million in one-time savings, mainly by having the information necessary to make better decisions. And the savings continue. "I'm saving over \$100,000 per year just from automating the reports," he says, noting this was not possible before.

At the Calvert City plant, Plant Intelligence collects data from 17,500 points on the industrial network and forwards that data through a firewall to the WAN. Since the initial implementation, Atofina has purchased 80 Plant Intelligence servers and is rolling them out at hundreds of plants worldwide. Thanks to the system, company managers can analyze the data and figure out ways to improve processes and reduce costs.

For example, with safety and environmental issues being paramount, Atofina managers now pore over the data to identify areas where safety problems might crop up, to take action before any breakdowns occur. Plant Intelligence also lets Atofina's plants share best practices.

Over the next few years, being able to make better decisions like these just might let Atofina thrive where chemical manufacturers that do not employ real-time technology might stumble — or even die.

"Chemical companies are competing with suppliers from every corner of the globe," Eriksen says. "It won't get any easier. They have to do everything they possibly can to increase productivity."

Most chemical companies don't need convincing. For an industry that spends only 2% of revenue on IT annually, firms such as Atofina, Dow Corning, Eastman Chemical, Equistar, Nippon Chemical, Quaker Chemical and others have elected to spend their precious IT dollars on RTPM. In addition to OSI, Aspen Technology and Lighthammer Software Development are major RTPM players in this market.

The RTPM data-collection software application is installed on a dedicated server that usually resides on the company's industrial network, which controls the manufacturing process. Information is transferred through a firewall to the WAN. Because the industrial network is the heart of the operations, it must be protected. "The data flows only from the industrial network out to the WAN, not vice versa. A complex firewall separates the two sides," says Michelle Barlow, manufacturing systems manager for Atofina, in Axis, Ala.

Increased network overhead is another concern for Dow Corning, a \$2.6 billion company that uses Lighthammer Illuminator. The company also plans to distribute Lighthammer servers to its plants around the world to empower anyone involved in the supply chain to view and analyze the company's performance data.

However, Kirk Royster, IT architecture manager for Dow Corning in Midland, Mich., says the system will not have a significant effect on network performance because Lighthammer can cache servers. "This will reduce the impact on network bandwidth over the WAN. There's no need to query the source database every time if the information has not been updated," he says.

Given that chemical companies are so careful with IT spending, it is fortunate that RTPM systems are not ruinously expensive. Costs vary widely, but a company with \$5 billion to \$10 billion in revenue and approximately 50 plants can expect to spend about \$5 million to \$10 million on RTPM, Eriksen says.

"If you have no real-time technology in place today, just putting in a system will result in substantial ROI. It will pay for itself in less than a year," Eriksen says. Dow Corning expects business results and productivity gains from its first RTPM project to pay for the system for the whole company. Royster declined to give details, but says costs for the Lighthammer application represent a

CHEMICAL INDUSTRY: AT A GLANCE

- **Overall investment:** In 2002, chemical companies spent \$9.45 billion on IT, down from \$9.67 billion in 2001, according to the American Chemistry Council.
- **IT spending:** The chemical industry spends an average of 2% of annual revenues on IT, according to AMR Research. This year and next, chemical firms will earmark an average of 19% of their IT budgets for software applications such as RTPM.
- **U.S. revenue:** The American Chemistry Council estimates that U.S. chemical companies will total \$450 billion in revenue this year.
- **Innovation:** The chemical industry has helped develop more than 70,000 products. Chemical industry scientists and researchers account for one in seven patents filed in the U.S. every year, according to the American Chemistry Council.

fraction of the IT budget.

Companies can further reduce costs by having a vendor such as Industrial Evolution host the application for them. Quaker Chemical, a \$300 million chemical producer, pays Industrial Evolution about \$3,000 per month to receive real-time data from 25 points. "It's cost-effective, and we don't want to devote salaries and people to real-time monitoring," says Joe Berquist, product manager for Quaker in Conshohocken, Pa.

Remaining competitive in the chemical industry today requires the ability to make the continual process improvements afforded by RTPM. "No chemical company will continue to exist five years from now if they don't have some form of real-time infrastructure to monitor and manage their operations," Eriksen says.

Paul is a freelance writer in Waban, Mass. She can be reached at lauren.paul@comcast.net.

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Language lessons

Communication is the key to CIOs forging better relationships with CFOs to win consensus.

■ BY CHUCK TATHAM

CIOs and CFOs often act as though they are partners in a strained marriage. Both parties have seen their roles change within the organization over the past decade. Previously, the CFO had to approve all IT purchasing decisions, while IT executives were charged with making technology recommendations and implementations. Then came the free-spending technology boom that elevated the status of CIOs. This position was considered essential for any business, and the CIO's recommendations were viewed as mission-critical.

But today's downturn has made cost-cutting king, and many businesses have become disillusioned by empty ROI promises IT vendors made. Every IT investment is heavily scrutinized, leading many CFOs to once again seize control of IT budgets and get more involved in the IT decision-making process.

With more CFOs becoming technology-savvy and playing an increasing role in technology-spending decisions, CIOs and CFOs must learn to play nicely with each other. The thorn in the relationship's side lies in that most CFOs see the hefty dent IT expenditures make in the expense column, and yet they don't have a clear understanding as to how these investments contribute to corporate earnings. Few technology chiefs succinctly can demonstrate and justify the value and return of their IT expenditures, and worse, many have not yet adopted an IT governance model that lets them align IT with business needs.

Poor communication causes many of the problems CFOs and CIOs have. CFOs often think CIOs don't have a grasp on the company's overall strategic direction, while CIOs often feel isolated from corporate planning. For the marriage to work, CIOs must learn how to become strategic advisers who engage senior management and gain buy-in to technology projects while explaining the business impact in terms a financial leader can understand.

CIOs should think of their title as an acronym for "Communicate Information Often." What follows are several tactics CIOs and other IT leaders should try for improving relations with the CFO and other executives:

- **Become more comfortable with financial lingo.** Just as CFOs must now have a basic knowledge of technology the CIO must be able to communicate in terms the CFO understands, such as total cost of ownership or ROI.



Armed with hard data, CIOs will have an easier time selling projects to executive management.

- **Qualify and quantify IT spending.** The IT department cannot become accountable until it accurately can demonstrate how it is spending its time and budget dollars. To do this, CIOs are looking for technology investments that provide a holistic view into their IT operation to enable effective project portfolio management.

- **Generate value.** It's not about implementing the latest technology, but linking strategies to corporate goals by working and communicating directly with business managers.

For example, if a company improves profitability because of a business process automation system, the CIO should ensure that business managers comprehend the effect the technology investment had on this milestone. After clearly demonstrating the value IT investments have on corporate objectives, it will become easier to obtain buy-in on other technology expenditures.

- **Consider chargeback.** Think about adopting a chargeback model that includes billing staff time back to the appropriate business units. By running your IT department like a consulting practice, a CIO can ensure that the business units are aligned with technology spending. The result is better alignment of IT with overall corporate strategy.

- **Partner across the company.** Move toward coalition building. CIOs must be able to express persuasively and intelligently the technology agenda to peers, the press, industry executives and employees.

For example, if the CIO is lobbying for a complete overhaul of a CRM system, it only makes sense to work with the head of customer relations to produce a strategic proposal with supporting evidence — including some sort of ROI, such as productivity improvements and decreased customer turnover.

Making it work

When CIOs and CFOs aren't able to forge harmony, the losers in the dispute are quite often employers themselves. But if the communication breaks down and the two parties don't work in tandem — or in some cases work against each other — an organization automatically is put at a disadvantage.

CIOs who rise to the occasion by developing strong relationships with CFOs will reap significant rewards — and win a seat at the strategy table.

Tatham is vice president of marketing and business development for ChangePoint, a Toronto provider of business process automation software. He can be reached at ctatham@changePoint.com.

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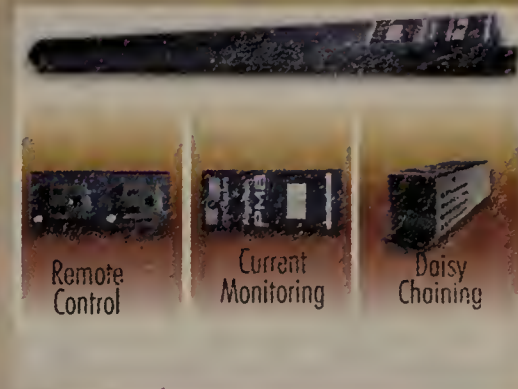
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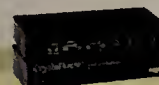
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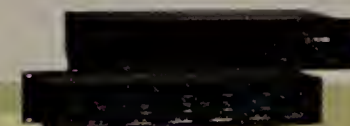
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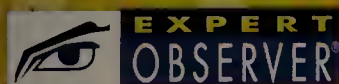
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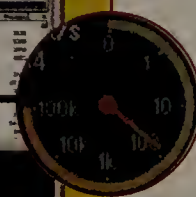
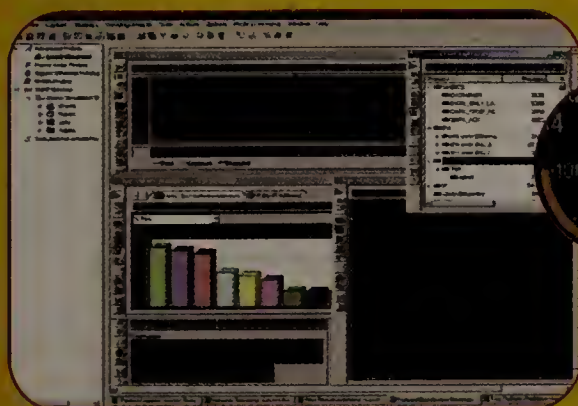


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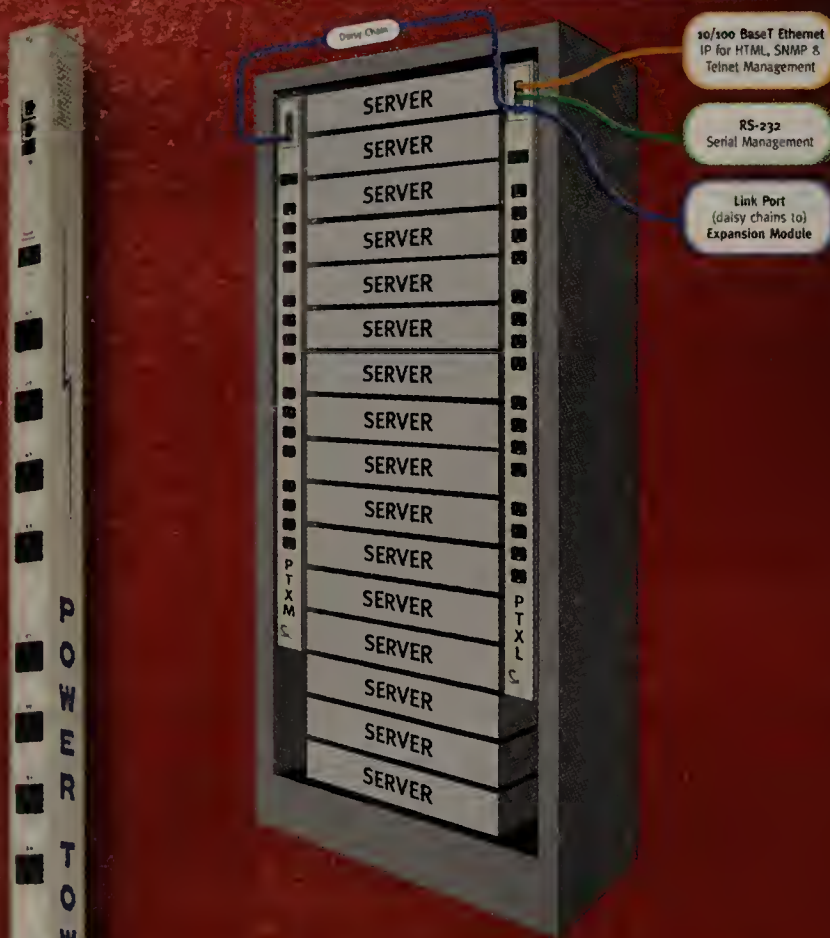
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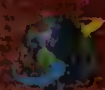
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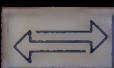
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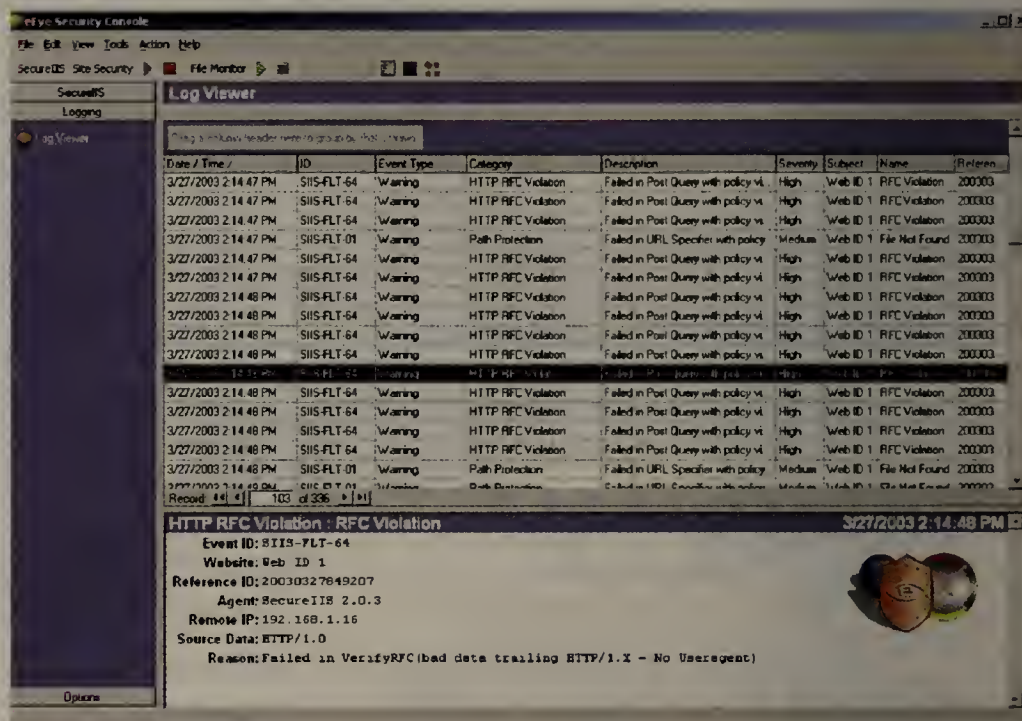


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Most every regional university across the nation offers some type of information technology or computer science degree or concentration. For students at the University of Alabama-Huntsville, the focus is on small classes taught by tenured faculty. At Southeast Missouri State, students are able to focus on computing for industrial applications but also for specializations in telecommunications and utilities. George Mason University in Washington, D.C. is pushing to meet the requirements for graduate and undergraduate students working in the defense and security arenas.

According to Dr. Peter Raad, director of the Hart eCenter and managing director of The Guildhall at Southern Methodist University,

academia tends to respond to educational needs rather than lead. The establishment of SMU's digital gaming certification program breaks that mold. "We believe that the technologies of digital game development are the fundamentals of the first new academic discipline of the 21st century," says Raad. "To some extent it's about jobs — there are very good jobs (projected at 5,000 a year) waiting for people with the education that The Guildhall provides."

For the highly rated programs, such as U.S. News & World Report's #1 undergraduate program at Rose-Hulman Institute of Technology (2004), there have been more significant changes designed to meet today's business requirements but also to preserve the United States' leadership in computing and software. Cary Laxer, professor and head of the computer science and software engineering degree programs, explains that by adding the software engineering degree program this year, Rose-Hulman is able to return the computer science degree to a more theoretical emphasis. This kind of approach, he believes, is critical for the United States to remain at the forefront of discovery and innovation in computing.

"The software engineering degree is something companies are looking for," Laxer says. "Nearly every engineering discipline involves writing code these days, but software engineering is for those individuals who will be writing hundreds of thousands of lines of code for a project."

Another distinction for Rose-Hulman is that the school recruits for a freshman class — not for specific majors or disciplines. It's the same approach as is used for another U.S. News & World Report ranking school, Harvey Mudd College in Los Angeles. "We find that 30 to 40% of the freshmen will change their majors while they're here, so we are selling all of our programs," Laxer says.

The school's reputation is based on more than the technical side, too. Laxer reports that the largest department at Rose-Hulman is humanities; students are required to take three years of humanities credits just as they were 25 years ago. "Probably one of the biggest changes we've found for students in looking for jobs is that companies have more distinct personalities — that fit between company and student is more important than ever."

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118 Turnpike Road, Southborough, MA 01772
Phone: (508) 460-3333

TO SEND E-MAIL TO NWW STAFF
firstname_lastname@nww.com

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Jane Weissman, Sales Operations Coordinator
Internet: clasker, jweissman@nww.com
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Tom Davis, Associate Publisher, Eastern Region
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Internet: tdavis, elisas, ajoseph@nww.com
(201) 634-2300/FAX: (201) 634-9286

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(508) 460-3333/FAX: (508) 460-1237

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(610) 971-1530/FAX: (610) 975-0837

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Utility

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Late last year, storage vendor Veritas spent \$537 million on application performance management vendor Precise Software and another \$62 million for automated server provisioning start-up Jareva Technologies.

Acquisitions aside, IBM has said it will invest about \$10 billion to develop utility computing technology in the next few years. Sun too anticipates investing \$10 billion in research and development, acquisitions and other activities over the next five years building out its N1 strategy.

HP says its acquisitions will further its Adaptive Enterprise strategy, which promises to provide corporations with intelligent software to manage data-center resources that are based on changing application and end-users' needs.

HP's utility road map rivals on-demand plans from management competitors BMC Software and IBM, and intelligent data-center initiatives from Sun and Veritas. And last week Microsoft got into the fray by rolling out its Automated Deployment Services, which supports the automatic and simultaneous installation of Windows 2000 and 2003 implementations to multiple servers.

Industry watchers say vendors with cash on hand will speed their time to market with acquisitions instead of building new technology in-house. Yet despite all the buying activity and vendor claims of utility computing gains, industry watchers say it's too soon to tell if the technology investments will guarantee success.

"Companies like HP, IBM and Sun have deep pockets, and, unfortunately for the small vendors, there are a lot of good bargains right now," says Glenn O'Donnell, a research director with Meta Group.

"HP added a small piece to its adaptive puzzle, but no one has nailed down utility computing entirely yet. They are all working to get, and stay, ahead of the pack," he adds.

Forrester Research and Gartner in separate reports put HP neck-and-neck with IBM in terms of their utility computing offerings and potential to deliver products. Other companies in the utility-computing competition include BMC Computer Associates and Micromuse, each of which makes network and systems management software. Microsoft's and Sun's plans fall further behind the

Shopping spree

In the past 18 months vendors have gone the acquisition route to fill out their utility computing portfolios with automation, storage virtualization and business process-driven tools.

Company	What it bought	What it got
BMC	IT Masters	Service and application modeling technology.
HP	Talking Blocks Extreme Logic	Service-oriented technology that tracks business processes. Software that deploys solutions based on Microsoft's .Net.
IBM	Think Dynamics Access360 Holosoft Trellisoft	Software-only data center automation capabilities for heterogeneous networks. Software to automate the provisioning of user rights and privileges. Business process modeling and monitoring tools. Multi-platform, automated storage resource-management software.
Sun	CenterRun Terraspring Pirus Networks	Software that deploys database, Web and Java applications across servers. Automated server provisioning software. Storage virtualization appliance.
Veritas	Jareva Technologies Precise Software	Automation software for server provisioning. Application performance and availability management software.

management vendors, in part because Sun's focus is on managing its servers and Microsoft's strengths lie primarily in managing its own systems.

Because the utility computing model could require customers to invest in new hardware, software and systems integration, many of them are wary of the technology.

Companies such as Priceline.com in Norwalk, Conn., see utility computing becoming a reality in their own data centers, just not yet. Priceline CIO Ron Rose uses automated server configuration and provisioning software from start-up BladeLogic. He says this type of automation across heterogeneous networks is the precursor to larger utility-computing plans.

"I believe that a true utility computing model would turn the overall data center into one big data-center operating system," Rose says. "So the first step is make multiple servers appear consistent to the management software."

Andy Davies-Coward, chief creative officer and co-founder of 422, an animation company in Bristol, England, says he couldn't deploy utility computing across his network.

"A company like 422 cannot afford to buy and deploy this type of computing power in-house," he says. He's using HP's Utility Data Center (UDC) on a test basis provided by HP Labs. "HP provided the client software, but outside of that, we're not touching the technical part of UDC," he says. UDC, available as

stand-alone software or as a hosted service, provides automated management and resource allocation features but lacks the application intelligence to deliver true utility computing.

Vendors would seem to agree with Priceline's Rose. IBM, Sun and Veritas each grabbed an automated server provisioning vendor and announced plans to integrate the technology into their offerings.

IBM last week introduced its Project Symphony strategy to deliver utility computing with the help of technology from its Think Dynamics acquisition. That buy-out added automated server provisioning software to Big Blue's Tivoli software division.

This type of technology can be used to manage multi-platform servers with standard, repeatable methods and reduce the number of administrators required to manage servers. In theory, automated server provisioning would let a utility-computing data center roll out a new server if the load on existing servers threatened to negatively affect application performance.

HP chose to partner with Opsware for this capability, but industry watchers speculate the partnership could develop into another acquisition.

But with its recent acquisition of Talking Blocks, HP says it will address a different utility-computing shortcoming: complex application management. Making sense of and putting to use application performance data collected across data center components remains elusive to most

management software makers, Meta's O'Donnell says. Part of the problem is the complexity built into applications, which vary in the technologies they use from .Net to Java to XML.

"In terms of application development, management is an afterthought, so there is no standard way to collect management data and get a read on the behavior of applications," O'Donnell says.

Only recently have companies such as Entuity, Mercury Interactive and Opnet started to track and record the paths an application takes when fulfilling an end-user request. Because utility-computing vendors propose to help companies first align business applications with the IT infrastructure and manage the network to support and optimize

application performance, it is critical that vendors get a handle on how applications use the infrastructure.

For its part, HP says Talking Blocks' service-oriented architecture technology, which manages the relationships between services and end users, will be integrated into HP's OpenView management software portfolio. It also will provide network managers with integrated, correlated data from disparate management sources. OpenView then would feed the intelligent application performance management data into HP's UDC, which could take automated actions to reallocate network and storage resources based on demand.

"Talking Blocks could help OpenView collect all this various application information and better assimilate the data and better communicate it with other applications such as UDC," says Stephen Elliot, an analyst at IDC.

He says HP and other vendors fighting to gain utility-computing ground will have to wait for a user community interested in these products, and only following that could a market leader emerge. Industry watchers and vendors agree it will be another three to five years before complete utility computing data centers emerge and it could take as many as 10 years before there is widespread customer adoption.

"The vendors are really battling for an uncertain future," Elliot says. "But utility computing does have them taking stock of what technology they have and filling gaps where they need to." ■



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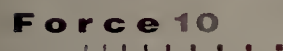
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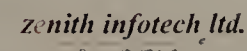
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Microsoft

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"ADS is a small piece of DSI, but Microsoft is headed in the right direction," says Paul Wimmer, lead system developer for Rackspace. A San Antonio, Texas, company

that hosts servers for corporate customers. Wimmer used ADS to replace some home-grown scripts for automated deployment of the Windows operating system, which shaved 40 minutes off the time it takes to roll out a server. "Anything that means our administrators have to touch our servers

less and makes us more efficient, we are all for it," he says.

Wimmer says he is on track to roll out DSI as it evolves and he hopes it makes his Windows environment easier to manage.

The road to DSI, however, is a long one.

"Microsoft is trying to develop a manage-

ment mindset with its utility model, but a lot of the pieces are missing," says Audrey Rasmussen, vice president of research for Enterprise Management Associates. One of those pieces is support for non-Windows platforms. "There is a lot of functionality that you need in managing the network, managing servers, capacity planning, and when you move to the utility model the link between those management systems will be more critical. It all has to be integrated. Microsoft will start to get there as they develop SDM."

SDM is the System Definition Model and is DSI's linchpin.

SDM is an XML-based technology Microsoft will build into applications, the operating system and management tools. SDM would let those three elements communicate among themselves about management issues and to understand the dependencies among applications, hardware and network capacity for systems to run correctly.

"Each vendor is addressing this management model in a different way but the desire is to drive out cost and complexity," says Bob O'Brien, product manager for Win 2003. "We are taking the life-cycle approach from design to deployment to operation. ADS helps address the deploy and operations piece."

ADS, which is based on the SDM model, is the second release under the DSI banner. The first was the Windows System Resource Manager that was part of Win 2003.

ADS is aimed at easing the rollout of the Windows operating system on servers by creating "images" or configurations that can be installed simultaneously on multiple computers. The free tool is run from a central console and "listens" for new servers that advertise themselves on the network. ADS installs an agent that helps get the operating system up and running. After the install, the agent can be used for administrative duties, such as configuring a server to join a cluster.

ADS, which began as a project within Microsoft Research, has been under development for nearly three years and has been beta-tested by 150 customers since March.

Company officials say the next step under DSI will come at year-end with the release of virtual server technology derived from the acquisition of Connectix in March. The technology will be married with ADS to let users provision virtual servers on one box. In mid-2004, the company plans to combine its Microsoft Operations Manager, an event and performance monitoring tool, and System Management Server into a product called System Center, which would provide tools to manage desktops, laptops, PDAs, applications and servers.

Microsoft also says it will begin to add tools for change and configuration management, asset management, application management, IT process orchestration, performance trending, reporting and capacity planning. ■

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BackSpin Mark Gibbs



An open letter to recent SCO Linux licensees

Dear recent SCO Linux licensee, Were you that afraid of litigation that you bought a license for Linux from The SCO Group? I'm sorry, but that is pathetic.

Yes, it might be only \$700 per processor and perhaps you think that's better than paying the \$1,400 license fee that SCO threatens after Oct. 15. Or maybe you purchased it because you're afraid that you might have to pay damages of some kind should SCO prevail in its suit against IBM.

Do you realize that what you have done is given in to blackmail? At first I was going to classify what SCO is doing as highway robbery but highway robbery is at least more honest. In highway robbery the robbers show you the weapon when they threaten you. Blackmailers are far more underhanded — they simply threaten you with what they claim they will do if you don't cough up.

And you gave in to it! Let's look at this carefully. For a start, if you are using Linux and it turns out to be illegal, it is like reading a photocopied book. Reading it is not illegal — it was the copying and distribution that was illegal.

And that's not my argument, that's the very well informed legal opinion of Eben Moglen, a professor at Columbia Law School and general counsel for

the Free Software Foundation.

In Moglen's recent paper, "Questioning SCO: A Hard Look at Nebulous Claims" (www.nwfusion.com/DocFinder/7542), he writes: "the Copyright Act doesn't grant the copyright holder the exclusive right to use the work; that would vitiate the basic idea of copyright. . . . Software users are sometimes confused by the prevailing tendency to present software products with contracts under shrink-wrap; in order to use the software one has to accept a contract from the manufacturer. But that's not because copyright law requires such a license. This is why lawsuits of the form that SCO appears to be threatening — against users of copyrighted works for infringement damages — do not actually happen."

And Moglen is not alone with this opinion. Lawrence Rosen, general counsel for the Open Source Initiative, writes in his paper "Q&A re: SCO vs. IBM" ([DocFinder/7543](http://www.nwfusion.com/DocFinder/7543)): "Assume the very worst: Assume SCO wins its case against IBM and IBM writes a big check for damages. Assume SCO proves that some portion of Linux is a copy or derivative work of its trade secret software. Assume SCO gets an injunction to prevent anyone from using any version of Linux containing infringing code. . . . Long before that happens there will be a new open source version of Linux omitting any

SCO code. . . . The SCO vs. IBM lawsuit is not likely to have any real impact on Linux users. It is a battle of big companies that will be resolved in due course by the court, perhaps by the payment of money. In the meantime, and forever, Linux is available for free."

And how about the code in question? So far the code that has been shown has either been put in front of people who aren't qualified to make a judgment (although in many cases they don't seem to have held back even so) or has been shown to be irrelevant to the case. See "Analysis of SCO's Las Vegas Slide Show" ([DocFinder/7544](http://www.nwfusion.com/DocFinder/7544)) by Bruce Perens about the SCO presentation shown in Las Vegas on Aug. 18.

As if that isn't enough, you have got to check out "SCO's evidence of copying between Linux and UnixWare" by Greg Lehey ([DocFinder/7545](http://www.nwfusion.com/DocFinder/7545)), a detailed analysis of the Las Vegas Slide Show code. There's no gun, smoking or otherwise, to be found.

So what you chaps have done, of your own free will, is give in to the demands of blackmailers who only threatened you and never actually displayed their weapons. Sure, it was a cheap and safe course, but was it smart or necessary?

*Yours,
Mark Gibbs, backspin@gibbs.com.*



'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Readers get another turn

What does it say about the state of e-mail that finding 850 messages in my

in-box after a two-week vacation had me thankful the pile was so small?

It says my company's new spam filters are doing a good job. And it also says the definition of small has changed over the years.

What hasn't changed is the commitment here to letting Buzz readers see their own views in print, so let's shake out a few virtual envelopes:

My defense of a Supreme Court decision holding public libraries responsible for using filters to keep Internet smut from kids was not met kindly by a number of readers.

"No, the filters don't work," writes Joe Preston. "The best filters indiscriminately block Web pages that even you or your buddies on the Supreme Court would judge to be innocuous, and that is censorship. Even worse, it's government taking the responsibility for good judgment out of the hands of librarians, really the best people to judge what's appropriate for libraries, and putting it into the hands of software companies."

The trouble is that too many librarians have already proven themselves irresponsible on this matter, which a few readers recognized.

"Thanks for your piece on Internet filters," writes David Mash. "I'm one of those rare librarians who agrees with you!"

An item lamenting the apparent advent of Internet voting turned up this objection to the practice:

"Under the current system it is possible to buy someone's vote (as in I'll give you \$5 to vote for me) but there is no way of knowing if they stay bought," writes Mike Kenworthy. "After all, the seller could still go into the voting booth and pick someone else and there would be no way of checking up on the purchase. However, introduce the Internet and it becomes, 'I'll give you \$5 for your voting

password.' Now the buyer is assured of getting the vote because the buyer casts it. Elections will be directly bought."

Another recent Buzzlet scoffed at an online survey in which three-quarters of the respondents claimed never to have used e-mail to criticize a boss. Liars, I called 'em.

"I want to take issue with your conclusion regarding the poll," counters Mark Heider. "I don't think it takes a saint to refrain from writing critically about superiors via e-mail. It only takes someone who understands the nature of e-mail, and the Pandora's box it can open. Once you hit the send button, you lose control of that message and those who might see it."

A column bemoaning the unwillingness of 'Net users to pay for online content brought this explanation from a reluctant buyer.

"My fundamental problem with paying for online content is that it is inconvenient to store and refer to later," writes Paul Erling. "Providers would like to view information as only temporarily available, and as equally valuable as more permanent formats (CDs, magazines, books). It isn't anywhere near as valuable to me if I can't easily receive a copy to refer to later."

While most of you backed my rant about DARPA's short-lived, online anti-terrorism betting parlor — dubbed the Policy Analysis Market (PAM) — a handful did attempt to defend the idea.

"You do the program an injustice," writes Chad Cloman. "From a purely objective point of view, it had a good chance of accurately predicting potential terrorist activities. The primary objection was not the program's effectiveness; rather, it was the morbid nature of the endeavor. It failed because it offended the sensibilities of the American public."

He's wrong about the injustice but dead-on with the other points. PAM might well have paid intelligence dividends, and it did die — deservedly so — because it offended the sensibilities of virtually everyone. That's a good thing, not a bad one.

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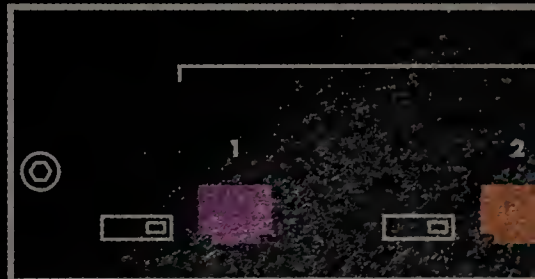
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